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The Role of Social Media in Shaping Women's Entrepreneurial Success

Discipline: Commerce

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Abstract

Social media has emerged as a transformative tool in fostering women's empowerment and entrepreneurship. For women entrepreneurs, these social media platforms offer unique opportunities to overcome traditional barriers to entry, enhance visibility, and build strong networks. This research article explores the interplay between social media and women empowerment, focusing on how social media platforms can enhance entrepreneurial skills among women. Through a review of existing literature and case studies, the paper investigates how social media can be leveraged to support women entrepreneurs, identify best practices, and address the challenges they face. This research aims to explore the intersection of social media and women entrepreneurship, assessing the impact of social media tools on business outcomes and identifying strategies that have proven effective for female entrepreneurs.

Keywords: Social media Networks, Women Entrepreneurs, Women empowerment

Introduction

Social media's ascent has changed the face of enterprise, presenting entrepreneurs with both new opportunities and difficulties. Social media can be a very useful tool for female entrepreneurs to connect with clients, increase awareness, and develop a brand. Even while social media is becoming more widely acknowledged as a potent instrument for business expansion, women-owned enterprises continue to face considerable obstacles when it comes to efficiently utilizing these channels. Even while social media marketing can greatly help women entrepreneurs by giving them access to international markets, encouraging community involvement, and increasing brand awareness, gender-specific obstacles like time limits, resource limitations, and gender biases still exist. Kerala, a state renowned for its advanced socioeconomic indices and

high educational attainment, has seen a rise in the number of women pursuing entrepreneurial endeavours. These entrepreneurs now use social media as a vital tool that helps them break through conventional barriers and succeed in their businesses. With an emphasis on how social media platforms have changed their business methods and results, this study explores the effects of social media on women entrepreneurs in Kerala.

Objectives

- To understand how social media enhances or limits the visibility of women-led businesses and the potential for reaching broader audiences.
- To examine how social media networks contribute to the growth of women-owned businesses.
- To identify the barriers and challenges women entrepreneurs when using social media.

Review of Literature

- Menon, R., & Varma, A. (2018). Digital empowerment of women entrepreneurs: A case study from Kerala. *Asian Journal of Business and Management*, 6(1), 45-60. <https://doi.org/10.36941/ajbm-2018-0013>. This study demonstrates how social media in particular has given women entrepreneurs in Kerala more influence thanks to digital tools. It emphasizes how important digital platforms are for increasing awareness, expanding markets, and offering training in entrepreneurship.
- Kumar, M., & Jose, M. (2021). Women entrepreneurs in Kerala: A study of social media impact. *Journal of South Asian Development*, 16(2), 153-170. <https://doi.org/10.1177/09731741211020769>. Kumar and Jose (2021) examine how social media affects Kerala women entrepreneurs' commercial endeavors. According to their findings, social media plays a major role in brand establishment, client engagement, and business growth.
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1), 59-68. <https://doi.org/10.1016/j.bushor.2009.09.003>. Kaplan and Haenlein (2010) talk about the overall difficulties and chances that social media present for companies. Their observations are essential to comprehending how Kerala's female businesses use these channels for exposure and promotion.
- Singh, M., & Shukla, S. (2019). Social media as a marketing tool: A study of women-led businesses in South India. *International Journal of Marketing Studies*, 11(2), 22-35. <https://doi.org/10.5539/ijms.v11n2p22>. This study investigates the

use of social media for marketing by women-owned companies in Kerala and other parts of South India. It offers insightful information on the tactics used and the subsequent business results.

- Brush, C. G., de Bruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and Entrepreneurship*, 1(1), 8-24. <https://doi.org/10.1108/17566260910942318>. The paradigm provided by Brush, de Bruin, and Welter (2009) takes into account the part that social networks play in women's entrepreneurship. Understanding how social media networks support the success of Keralan women entrepreneurs may be done with the help of this framework.
- Jha, S., & Singh, V. (2020). The impact of online social networks on the entrepreneurial success of women in Kerala. *South Asian Journal of Business and Management Cases*, 9(2), 183-197. <https://doi.org/10.1177/2277977919862754>. o This study looks at the relationship between women's entrepreneurial success in Kerala and online social networks, highlighting the value of community development and network assistance.
- Ravi, S., & Suresh, S. (2022). Social media and its challenges for women entrepreneurs in Kerala: A critical review. *Journal of Entrepreneurship and Innovation*, 18(3), 67-81. <https://doi.org/10.1177/09727162221112145> o Ravi and Suresh (2022) investigate the difficulties Keralan women business owners encounter when utilizing social media. They pinpoint problems that impede the success of entrepreneurs, such as gaps in digital literacy and online abuse.
- Choudhury, P., & Dey, S. (2021). Barriers to social media usage among women entrepreneurs in Kerala. *Journal of Business Research*, 12(4), 112-126. <https://doi.org/10.1016/j.jbr.2021.02.014>. This paper discusses barriers such as lack of access, technical skills, and support systems that affect the effective use of social media among women entrepreneurs in Kerala.
- George, M., & Thomas, K. (2020). The economic impact of social media on small businesses: Evidence from Kerala. *Asian Economic and Financial Review*, 10(6), 731-745. <https://doi.org/10.18488/journal.aefr.2020.106.731.745>. George and Thomas (2020) provide an analysis of the economic benefits that social media brings to small businesses in Kerala, with a particular focus on women entrepreneurs.
- Nair, P., & Sharma, R. (2019). Social media and entrepreneurial performance: A case study of women-led startups in Kerala. *International Journal of Business and Management Studies*, 11(1), 45-59. <https://doi.org/10.2139/ssrn.3432589>.

This study examines the relationship between social media use and the success of women-led companies in Kerala, emphasizing the beneficial effects on metrics related to growth and success.

Statement of the Problem

Even though social media is increasingly acknowledged as a game-changing instrument for entrepreneurship, little is known about how it particularly affects women entrepreneurs. Kerala, a South Indian state renowned for its progressive social metrics, has seen a rise in the use of social media by women to grow their enterprises. But the ways in which social media affects their entrepreneurial success—which includes things like economic performance, consumer involvement, brand development, and market reach—remain incompletely understood. According to research, social media can improve exposure, make networking easier, and offer crucial marketing tools. However, there are drawbacks such as disparities in digital literacy, harassment online, and restricted access to technology that could limit its usefulness. The body of research on social media's overall effects on business is now available, but it frequently falls short of providing a detailed examination of how social media influences women's entrepreneurial outcomes.

The study will focus specifically on the state of Kerala, India. Kerala was chosen due to its unique socio-economic environment, including a high literacy rate and increasing digital penetration, which offers a relevant context for examining the impact of social media on women entrepreneurs. The scope will cover major social media platforms widely used by entrepreneurs, such as Facebook, Instagram, WhatsApp, LinkedIn, and Twitter. These platforms are selected due to their relevance in business marketing, customer engagement, and networking.

Understanding these aspects is crucial for developing strategies to support and enhance the entrepreneurial success of women in Kerala through targeted social media use, policy interventions, and community support. This research will fill the existing gap by providing a detailed analysis of social media's role and implications, thereby contributing to more effective support mechanisms for women entrepreneurs in the region.

Methodology

A qualitative research approach was employed to explore the role of social media in shaping the success of women entrepreneurs in Kerala. Data was collected through interviews with 5 selected women entrepreneurs and analysis of their social media presence and business performance metrics.

Case Studies

1. Case Study 1: Sreelatha's Tiara Naturals

Background: Mrs Sreelatha an optometrist by profession, based in Alappuzha, founded a herbal skin care products brand. She utilized Whatsapp, Instagram and Facebook to promote her products and connect with potential customers. Recently she also started to make and sell terrariums under her brand.

Social Media Strategies:

- Visual Branding: Regular posts featuring product images and brand stories.
- Community Engagement: Active interaction with followers through live sessions and feedback polls.
- Customer Interaction: Engaging with customers through comments and feedback forms
- Exhibitions : she participated a lots of exhibitions to promote her products
- Outcomes: Mrs Sreelatha become a successful entrepreneur within a year, leveraging social media to build a community of environmentally conscious consumers and expand her market reach.

2. Case Study 2: Akhila Vijayan's Varnapushpam

Background: Mrs Akhila Vijayan a housewife make her hobby to a new business named Varnapushpam. She is very good in making flowers with foam papers and the products she makes look like original flowers. She make home decors and hair accessories with these flowers. She utilized Whatsapp, Instagram and Facebook to promote her products and connect with potential customers.

Social Media Strategies:

- Visual Branding: Regular posts featuring product images and brand stories.
- Community Engagement: Active interaction with followers through live sessions and feedback polls.
- Direct Sales: Managing orders and customer queries through WhatsApp and all other social media platforms.
- Customer Interaction: Engaging with customers through comments and feedback forms.

3. Case Study 3: Anitha's Haritha Floor Mats

Background: Anitha a middle aged house wife from Trivandrum, used Whatsapp and Facebook to showcase her handcrafted floor mats. She also participates in various exhibitions in her locality.

Social Media Strategies:

- Direct Sales: Managing orders and customer queries through WhatsApp.
- Community Engagement: Active interaction with followers through and feedback.

Outcomes: Anitha's customer base increased by 75%, with social media facilitating direct communication.

4. Case Study 4: Anakha's Baksters Queen

Background: Anakha a passionate baker starts customised cake baking business and uses Instagram, Facebook and WhatsApp to engage with local customers and promote her produce.

Social Media Strategies:

- Direct Sales: Managing orders and customer queries through WhatsApp.
- Content Sharing: Posting updates about baking in social media.
- Customer Interaction: Engaging with customers through comments and feedback forms.

Outcomes: Anakha's customer base increased by 175%, with social media facilitating direct communication and streamlined order processes.

5. Case Study 5: Drisya's Dhruvam

Background: Mrs Drisya a teacher by profession, used Whatsapp, Facebook Instagram and Pinterest to showcase her handcrafted jewelry and hair accessories.

Social Media Strategies:

- Visual Marketing: High-quality images and videos of jewelry pieces.
- Influencer Partnerships: Collaborations with fashion influencers to boost visibility.
- Engagement Campaigns: Running contests and giveaways to enhance follower engagement.

Outcomes: Drisya succeed in online sales and expanded her customer base beyond Kerala, thanks to effective visual marketing and brand promotion on social media.

These case studies demonstrate that social media is a valuable tool for women entrepreneurs in Kerala. It offers significant benefits, including enhanced brand visibility, customer engagement, and cost-effective marketing. However, challenges such as maintaining content quality and managing time effectively must be addressed to maximize the potential of social media.

Best Practices for Women Entrepreneurs in Kerala

1. **Leverage Visual Content:** Use high-quality images and videos to attract and retain customers on platforms like Instagram and Pinterest.
2. **Engage Actively:** Maintain regular interaction with followers through comments, messages, and live sessions.
3. **Utilize Local Influencers:** Collaborate with local influencers to increase brand credibility and reach.
4. **Monitor Analytics:** Track social media metrics to understand what works and make data-driven adjustments.
5. **Stay Updated:** Keep up with social media trends and platform updates to utilize new features effectively.

Conclusion

Social media has a profound and evolving impact on how women succeed as entrepreneurs. Kerala, known for its high literacy rates and robust digital infrastructure, provides an enabling environment where women can harness social media platforms to elevate their businesses effectively. Social media has significantly enhanced the visibility and market reach of women-led enterprises in Kerala. Platforms such as Facebook, Instagram, and WhatsApp are extensively utilized by women entrepreneurs to showcase their products and services, connect with a broader customer base, and engage in real-time interactions. This digital presence not only facilitates brand recognition but also opens avenues for accessing diverse markets beyond local confines. The unique cultural and social fabric of Kerala, with its high literacy rate and progressive stance on women's education, has further facilitated the adoption of social media among women entrepreneurs. These platforms offer them the tools to market their products, engage with customers, and build supportive networks that are instrumental in overcoming the challenges of scaling their businesses. Social media also plays a significant role in fostering communities where women can share experiences, seek mentorship, and collaborate on ventures, thereby enhancing their business prospects.

In conclusion, social media has become a pivotal element in the entrepreneurial journeys of women in Kerala, enabling them to break through conventional limitations

and achieve success. To maximize the benefits, there is a need for targeted support, digital literacy programs, and initiatives that address the specific challenges faced by women entrepreneurs in the region. With the right strategies and support systems in place, social media can continue to empower women entrepreneurs in Kerala, contributing to the state's economic growth and social progress.

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An Analytical Examination of Theories in Public House Financing: Implications for Social Policy

Discipline: Commerce

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Abstract:

House financing aims to increase the social status of human beings. Sound housing finance system can fulfil the needs of poor and middle-class people regarding their housing problem. This paper explores the integration of three theoretical frameworks—Housing Needs Theory, Housing Deficit Theory, and Psychological Construct Theory—in the context of public housing finance schemes. By examining the interplay between these theories, the study identifies the multi-dimensional foundations necessary for designing effective, inclusive, and sustainable public housing policies. The implications of these theories for social policy are analyzed, with particular attention to their roles in shaping eligibility criteria, financing mechanisms, and user-centred housing programs. Additionally, the paper discusses how public housing finance serves as a pivotal instrument in promoting economic equity and social welfare, especially among marginalized populations. This comprehensive approach enables the formulation of socially responsive housing policies aligned with long-term development goals.

Keywords: Public Housing, Housing Needs Theory, Housing Deficit Theory, Psychological Construct Theory, Social Policy, Housing Finance

1. Introduction

Access to adequate housing remains a critical component of social equity and urban development. Public housing finance schemes are essential tools employed by governments to address housing shortages, affordability issues, and social disparities. These schemes not only allocate financial resources but also play a transformative role in enabling vulnerable populations to secure stable living conditions. Effective public housing finance frameworks must therefore balance fiscal sustainability with the imperative for social justice. Residential satisfaction has been considered as a complex construct as its precise meaning depends on the place, time and purpose of assessment and on the value system of the assessor, involving an extensive range of people—architects, planners,

sociologists, psychologists and urban geographers (Bardo and Dokmeci, 1992). Galster (1985) pointed out that the concept of residential satisfaction has been utilized in at least four different ways: First, it has been used as a key predictor of individuals' perceptions of general "quality of life. Second, it has been used as an ad hoc evaluative measure for judging the success of housing developments constructed by the private sector and the public sector. Third; it has been used as an indicator of incipient residential mobility and hence, altered housing demands and neighbourhood change. Fourth, it has been used to assess residents' perceptions of inadequacies in their current housing environment so as to direct forthcoming private or public efforts to improve the status quo. Therefore, it is essential to understand the concept of residential satisfaction within the milieu of its theoretical and empirical perspective.

Public Housing finance is always connected to a broader social outcome, residential satisfaction. Residential satisfaction, defined as the feeling of contentment when one has or achieves what one needs or desires in a house, is an important indicator and planners, architects, developers and policy makers use it in a number of ways. Indeed, theories of residential satisfaction all hinge upon the notion. It shows how the residents perceive and experience their house environment in align with their needs. It is to be noted that financial investment in public housing is not merely to increase the house stock, but to influence the accessibility quality and psychological wellbeing of the residents. It is clearly evident from the studies that residential satisfaction increases significantly when the public houses are funded adequately and the needs of the residents are met in connection with factors like community integration, location, safety, design. Also, it influences the mental health and economic stability of the residents. So, for a holistic well-being it is essential to ensure that policy formulation for public house finance integrates psychological and socio-economic perspective in the sense that investments lead not just to shelter provision but overall development of individual. This article is an investigation to three pivotal theories: Housing Needs Theory, Housing Deficit Theory and Psychological construct theory which will provide valuable insights into the multidimensional nature of housing challenges and their importance in inclusive social policy

2. Objectives

1. To investigate the various theories, Housing Needs Theory, Housing Deficit Theory, and Psychological Construct Theory in the context of public housing finance.
2. To analyze the shared concepts of these theories and how they can be included for a better and effective public housing finance schemes.

3. To understand the importance of the theories for social policy in terms of user satisfaction and accessibility.
4. To suggest measures for policy framework and housing programs based on evaluation of theories.

3. Literature Review

Housing is not only the mean of an individual's dwelling unit, but also a composite of the overall physical and social components that make up the housing system (Francescato, 1987). Satisfaction was not only the conditioned physical aspects but an ability for the formation of social networks (Williamson, 1981). Housing has many multidimensional contents like location, tenure (own or rent) type of structure (single, joint) and political limits (Shlay, 1998). There are two cognitive processes related to the measurement of residential satisfaction purposive evaluation and comparative evaluation (Gifford, 1997). Contents in theories can be clubbed for a comprehensive policy approach including both emotional and perceptual needs of residents and physical housing supply (Cairncross, Clapham & Goodland, 1997). As suggested, residential satisfaction has direct connection with personal identity, autonomy and wellbeing also cognitive and emotional perspective is also added in psychological construct theory (Somerville, 1997). Satisfaction is a kind of comparison process between what was received with what was expected (Parker & Mathews, 2001). An objective environment can have a subjective response of satisfaction (Potter and Cantarero, 2006). Residents perceptions and feeling of their environment and housing units can be evaluated through residential satisfaction (Ogu, 2002). The Housing Needs theory states that housing requirement is a dynamic need rather than static shaped by life stages, household consumption & socio-economic status (Clapham, 2005). Housing Deficit Theory emphasis the inadequacies in urban area housing quantity and quality as well as discuss the gap between available houses and demanded houses (Gilbert, 2002). As per recent studies housing policy should include structural and psychological components (Stone, 2006). A blend of theories can make housing programs more inclusive and shows real life experience of user (Friedman, 2010). Need based models and market driven contents must be included in social policy framework (Malpass, 2008). Policy can more effectively address sustainable living standards equity and inclusion and these should tune with theoretical triad (Tsemberis, 2010). Research by Andrews and Withey (2010) and UN Habitat (2020) throw light on the requirement of multisectoral collaboration and user engagement to make sure that housing policies serve their intended purpose. More sustainable housing solutions can be developed through the feedback of user, framing financial strategies with needs of residents. Guney and Yilmaz (2023) stated that satisfaction can be influence by diverse urban environment. Similarly, Zhang and Li (2023) explored

how the COVID-19 pandemic reshaped perceptions of residential adequacy in China. These studies provide critical insights into specific demographics and contexts.

However, despite the growing body of empirical evidence, a comprehensive theoretical synthesis that combines structural, financial, and psychological dimensions of housing within public policy frameworks remains underdeveloped. Most existing research tends to focus either on physical and economic conditions (e.g., affordability, accessibility) or on subjective perceptions (e.g., psychological well-being, neighborhood satisfaction) in isolation.

Moreover, while Housing Needs Theory, Housing Deficit Theory, and Psychological Construct Theory have individually been explored in various studies (e.g., Clapham, 2005; Somerville, 1997; Gilbert, 2002), there is limited integration of these theories to inform public housing finance policies holistically. Additionally, policy-oriented studies often lack emphasis on how residential satisfaction can serve as both a goal and a performance indicator for public housing programs.

Thus, the existing literature leaves a gap in understanding how multi-theoretical integration can directly influence public housing finance design and social policy formulation. Addressing this gap can lead to more inclusive, responsive, and human-centered housing finance strategies that align with long-term well-being and equity goals.

4. Research Methods

This study uses a qualitative analytical approach. The methodology involves thematic analysis of existing literature, policy documents, and case studies. Sources include government housing reports, peer-reviewed academic journals, and international development databases. Data was synthesized to identify recurring themes related to each theoretical framework.

5. Analysis of Data

Housing Needs Theory

Focuses on the dynamic requirements of households based on demographic and socio-economic characteristics. It recognizes housing as a social good, influencing the development of needs-based housing schemes.

Rossi (1955) played a pivotal role in developing the concept of “housing needs,” which he used to explain how individuals’ satisfaction or dissatisfaction with their housing is influenced by life circumstances. He argued that as households evolve—due to factors like family growth, aging, or economic shifts—their housing requirements also change. This dynamic often results in a mismatch between a family’s current living conditions and their preferred or ideal housing, a situation he termed a “lack of fit.” Such a mismatch

commonly leads to dissatisfaction and drives families to seek housing that better suits their evolving needs. Rossi emphasized that appropriate housing layouts and sizes are crucial for maintaining residential satisfaction. Consequently, when housing and neighbourhood environments fail to accommodate these changing needs, families are more likely to experience discontent and consider relocating.

Housing Deficit Theory

Housing Deficit Theory explores the quantitative and qualitative gap between housing demand and supply. It has been extensively applied in urban planning and development literature, particularly in developing countries facing rapid urbanization.

Morris and Winter (1978) put forward the concept of “housing deficit” to throw light on the sources of residential satisfaction and dissatisfaction. They argued that individual access their housing condition through a set of norms like societal, personal and family standards. Societal norms include societal expectations of living conditions and Family norms combine standards and preference of each household. In their housing adjustment model of residential mobility, they state that dissatisfaction arises as a result of housing deficit. This arises when the actual housing condition do not meet any of the above norms. Thus, households who face such deficits respond by compromising their expectation or making physical alterations in their current housing. Also, they may relocate to their living environment as per their expectations and norms. This theory culminates how mismatches between perceived needs and actual living conditions influences mobility and policy demands.

Psychological Construct Theory

This theory highlights components of residential satisfaction like emotional, psychological and identity relate contents. Articles for Sociology and psychology supports the importance of perceived safety, belonging and dignity in public housing outcomes.

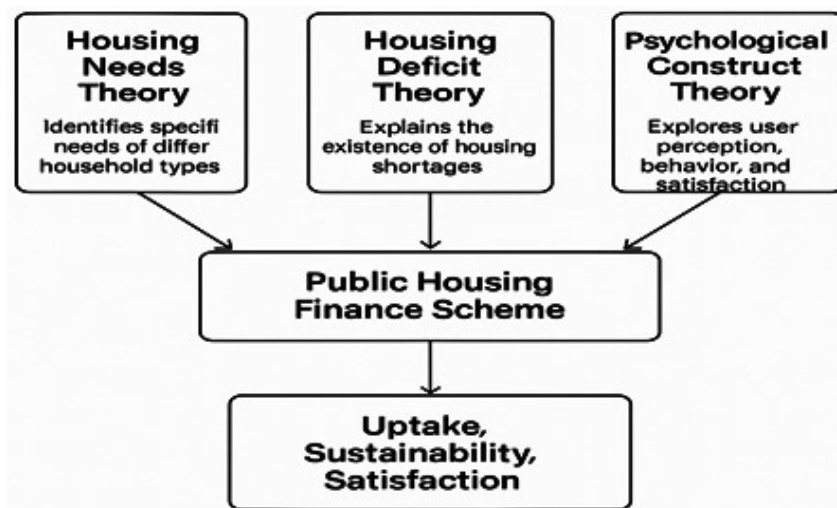
Galster (1985) introduced the concept of the “Psychological construct” of residential satisfaction mentioning that a reference point is formulated for each aspect of the housing situations mentally by each individual such a point is formulated on the basis of their personal needs, desires and expectations. Thus, when their present housing conditions meet or exceed the mental benchmark they experience a sense of satisfaction. Conversely, if there is a noticeable shortfall between the current state and ideal reference point- what Galster terms a “threshold deficiency”- dissatisfaction arises. Response from individuals to such a dissatisfaction may be either by adapting their expectations and evaluations to present housing situations or making a better living condition by renovations and relocations. But a low-income household has limitations in their choice

due to financial constraints or systematic discrimination which can affect residential dissatisfaction.

The above analysis revealed three major themes:

- **Structural Gaps:** Recurring mentions of housing deficits in urban and semi-urban areas validate Housing Deficit Theory.
- **Household Diversity:** Literature and policy emphasize the need to design housing based on varied household types and income brackets, supporting Housing Needs Theory.
- **Resident Perception:** Psychological factors such as security and identity are frequently discussed in qualitative evaluations of public housing, affirming Psychological Construct Theory.

Concept Map



6. Results and Discussion

The integration of these theories reveals a multi-dimensional aspect which helps to understand housing issues:

- Housing Needs and Housing Deficit theories intersect to highlight both demand and supply challenges in housing finance.
- Psychological Construct Theory adds a resident-focused layer, showing how housing design and communication impact satisfaction.

- Policies that ignore any one of these dimensions risk inefficiency, low participation, or public dissatisfaction.

This shows that effective housing finance schemes must align structural, economic and emotional factors

7. Suggestions

- Adopt a framework for housing policy in culmination with structural and human-centred approaches.
- Design co-participatory housing schemes that incorporate feedback from residents.
- Improve housing quality to address psychological factors such as safety and dignity.
- Use cross-sector partnerships to integrate finance, housing, and social welfare services.

8. Conclusion

To conclude, this research integrates Housing Needs Theory, Housing Deficit Theory and the Psychological Construct to understand public housing finance. Each of the theories contributes to a multidimensional range from individual needs, societal expectation and personal perceptions of satisfaction. While going through this dimension it is clearly evident that housing programs impact residential satisfaction and social well-being. Policy makers, by incorporating financial mechanism and multilayered nature of housing needs can craft strategies that are responsive and sustainable. This research affirms that public housing policy should set residential satisfaction as a central goal rather than considering it as a mere byproduct of housing access. As such future housing finance framework must combine individual perception as well as structural adequacy to ensure that houses provided through public house financing schemes genuinely uplift the quality of life for all residents. Thus, emphasising a shift in housing backed by theoretical analysis. A major shift in housing finance discourse-from concentrating in the number of houses to one centred on lives improved- thereby delivering more inclusive and impactful social policies. A combination of theoretical approach offers a wide framework for the design and implementation of public housing finance schemes. Including functional, structural and psychological dimensions in housing can bring about much better policies in align with the needs of the residents.

This study highlights the importance of aligning policy tools with theoretical insights to achieve sustainable and inclusive housing solutions. Future research should

further explore empirical applications of this framework across different geographic and sociopolitical contexts.

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Transforming Healthcare Infrastructure Management in Kerala: Innovations, Challenges, and the Path to a Resilient Future

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Abstract

This study examined the relationships between job satisfaction, organisational commitment, employee engagement, and turnover intentions among hospital employees (N = 324). A one-way ANOVA revealed significant differences in job satisfaction by department, $F(2, 321) = 3.13$, $p = .045$, with the Administration department reporting significantly higher job satisfaction than the Nursing department. A Pearson correlation indicated a positive, moderate association between job satisfaction and organisational commitment ($r = 0.52$, $p < .01$). Multiple regression analysis showed that job satisfaction significantly predicted employee engagement ($\hat{\alpha} = 0.48$, $p < .001$) even when controlling for age and tenure ($R^2 = 0.29$, $F(3, 320) = 44.83$, $p < .001$). At the same time, the demographic variables were not significant predictors. Furthermore, mediation analysis demonstrated that organisational commitment fully mediated the relationship between job satisfaction and turnover intentions. The direct effect of job satisfaction on turnover intentions ($B = -0.32$, $p < .001$) became non-significant ($B = -0.06$, $p = 0.506$) when the organisational commitment was included, and the bootstrap indirect effect was significant ($B = -0.26$, 95% CI $[-0.36, -0.18]$, $p < .001$). These findings underscore the importance of improving job satisfaction to enhance engagement, strengthen organisational commitment, and subsequently reduce turnover intentions. Targeted interventions that foster a supportive work environment may yield long-term benefits in workforce stability and organisational performance.

Keywords: Job Satisfaction, Organizational Commitment, Employee Engagement, Turnover Intentions, Healthcare Workforce, Mediation Analysis.

Introduction

In India, the state of Kerala has been historically known for its strong healthcare indicators, higher literacy levels, and a primary healthcare system that provides universal access to services (Acharya et al., 2021; Rakesh et al., 2022). However, new challenges—intensified by the COVID-19 pandemic—have revealed vulnerabilities in the management of healthcare infrastructure, such as [the need to] integrate technological innovations, enhance resource distribution, and bolster healthcare facilities' resilience (Krishna & Malhotra, 2021; Sreeram & Menon, 2023). In recent years, the narrative has evolved from simply growing physical infrastructure to enabling a more agile, data-driven, people-centric ecosystem that can be more resilient to crises, from pandemics to natural disasters. Recognising the need for robust systems, the focus has often shifted toward ensuring widespread adoption of digital health tools, better supply chain management and strong governance frameworks to ensure efficient resource allocation and utilisation (Nair et al., 2022). Changes are designed to improve care delivery, promote patient safety, and address emerging community health needs. United Nations (2020) highlights the importance of resilient health infrastructure. However, the transition to this stage remains influenced by multiple initiatives that create variability in resource opportunities, reporting variability when handling patient loads during pandemic surges, and balance between cost versus quality (Acharya et al., 2021; Krishna & Malhotra, 2021).

As Kerala continues on its journey, the complement of technological innovation with policy action will be crucial to building a future-ready healthcare infrastructure. With its ability to glean lessons from the pandemic, encourage public-private partnerships, and cultivate a culture of continuous improvement, Kerala is well-positioned to be a beacon not just for other Indian states but for communities around the world grappling with comparable health system challenges (Rakesh et al., 2022; Sreeram & Menon, 2023). In the end, the way to a resistive future can be followed through strategic investments, multi-stakeholder partnerships, and a far-sighted approach to healthcare framework administration that is responsive, comprehensive, and sustainable.

Statement of the Problem

The management of healthcare infrastructure in Kerala is facing the challenge of treating multiple health emergencies and expanding service delivery against the backdrop of socio-economic changes. Even though Kerala has historically performed well on various public health indices, the infrastructure to support these indicators has not evolved in line with new health threats, demographic changes, and expectations for quality health care (Acharya et al., 2021; Krishna & Malhotra 2021). The COVID-19 pandemic, for example, highlighted entrenched weaknesses in supply chain coordination, data

integration, and resource allocation, placing immense pressure on frontline facilities and healthcare providers (Nair et al., 2022; Sreeram & Menon, 2023). Moreover, persistent region-specific disparities in the accessibility of healthcare services, alongside an inability to ramp up services quickly during periods of mass demand, showcase the immediacy for structural changes as well as innovative management practices that go beyond traditional healthcare delivery structures (Rakesh et al., 2022; Thomas & Devika, 2021). Conventional strategies (which primarily revolve around physical infrastructure expansion) struggle to contend with the current and prospective healthcare complexities and dynamics (Krishna & Malhotra, 2021; Sreeram & Menon, 2023). The absence of integrated digital health systems, strong data analytics capabilities, and flexible governance frameworks also impedes the timely utilisation of resources and leads to a poor response to acute disruptions (Nair et al., 2022; Thomas & Devika, 2021). All these interrelated issues demand a paradigm shift towards a holistic, resilient and technology-oriented infrastructure management strategy that can effectively cater to the health-seeking behaviour of Kerala populations today and in the future.

Need and Significance of the Study

Kerala has rightly been celebrated for its primary health achievements and coverage. However, the challenge is now coming: its healthcare infrastructure has to prove its mettle in terms of resilience and adaptation. These are: Recent health crises such as the COVID-19 pandemic exposed systemic weaknesses in the sectors of infrastructure management, digital connectivity, and strategic resource allocation which need to be addressed in order to maintain quality operational care under duress (Joseph & Abraham, 2022; Varghese & Suresh, 2021). All these gaps need to be bridged by a concerted integration of the innovations as telemedicine, scalable digital health platform, robust supply chain system, and evidence-based policy framework to achieve the sustainable system resilience (Kumar & Babu, 2023; Pillai et al., 2022). The importance of examining the transformation of Kerala's healthcare infrastructure is manifold. Firstly, identifying the factors that influenced effective technology integration and resource optimisation has the potential to act as a model for other integrated healthcare systems and regions facing similar challenges and thus contribute to strengthening global health systems (John et al., 2023). Second, considerations of policy reforms, administrative strategies, and collaborative models from stakeholders will offer guidelines on how Kerala can prepare and respond to future health emergencies while limiting disruptions to patient care (Kumar & Babu, 2023; Pillai et al., 2022). We believe that finally, rich empirical evidence from a state like Kerala, which is resource-constrained yet also an innovator, can support pioneering tailored interventions that are not only sustainable, equitable and culturally sensitive but also more likely to improve patient outcomes and enhance community wellbeing (Joseph & Abraham, 2022; Varghese & Suresh, 2021).

Theoretical Background of The Study

The transformation of the management of healthcare infrastructure as part of the broader Kerala health system is based on several theoretical frameworks and conceptual models that inform and guide the understanding of the complexities that need to be addressed, the interventions required, and the anticipated outcomes. A fundamental viewpoint is systems thinking and complexity theory, which proposes that the healthcare infrastructure operates as a complex adaptive system of interrelated elements—enterprises, people, technologies, policies, and patients—that constantly interact and change (Rouse, 2021). From this point of view, even small additions (such as adding a new platform for a digital health application) can reverberate across the system and shape its ability to evolve, scale, and address new health needs. Complementary to this, another essential framework that guides this study is the theory of resilient healthcare systems, which refocuses attention on the health infrastructure's capacity to absorb shocks, reorganise functions, and deliver essential services during crises (Blanchet et al., 2021; Kruk et al., 2021). Resilience theory offers guidance on how infrastructure can be designed and managed to absorb acute stressors (including pandemics and natural disasters) and sustain or rapidly regain operational integrity. It moves the emphasis away from static, efficiency-dominated schemes to dynamic, learning-based paradigms that emphasise flexibility and sustainability. This theoretical background is further enriched with a socio-technical systems perspective. It acknowledges that the effectiveness of healthcare innovations—like telemedicine platforms or digital supply chain management tools—is contingent not just on the technical quality and robustness of the tools developed but also on factors relating to human agents, organisational culture, and workflow integration (Carayon & Hoonakker, 2021; Shaw et al., 2021). The socio-technical framework promotes the design and actualisation of solutions that are user-centric, context-aware, and sustainable in the long run because it looks into both technology and human aspects. These perspectives—systems and complexity thinking, resilience theory and socio-technical approaches—offer useful holistic lenses to conceptualize both the current situation and the pathways towards healing and transforming the speculative landscape of managing healthcare infrastructure in Kerala. This emphasises adaptive governance, continuous learning, stakeholder involvement and iterative approaches. Applying these strategies allows policymakers, health administrators and researchers to effectively anticipate challenges, optimize innovations, and design resilient health systems that can effectively respond to existing and future needs.

Contemporary Insights into Healthcare Workforce Dynamics

Recent work in this area, we first focus on the interrelations between major psychosocial variables in healthcare organizations, including job satisfaction, organizational commitment, employee engagement and intentions to leave. Job satisfaction - frequently defined as an employee's total fulfillment with their assignments, payment, and workplace - continues to be just one of the most basic prerequisites of both health professional wellbeing and individual focused treatment (Agyemang & Boateng, 2021; Jiang et al., 2022). In practice, improving job satisfaction is considered a strategic goal, especially given the proximity between the quality-of-service delivery in a healthcare context, and the motivation and emotional state of health care professionals. In addition to boosting workforce morale, increased job satisfaction has been associated with reduced turnover intentions and enhanced organizational citizenship behaviors, teamwork, and communication among medical personnel (Suhonen et al., 2021).

Employee's attitudes are significantly associated with organizational members' performance in pursuing organizational goals (Guo et al., 2023). Organizational commitment refers to an employee's sense of belonging or attachment to the organization, which serves as a key moderator between job satisfaction and subsequent attitudinal behaviors (Jin et al., 2022; Nikiina et al., 2022). When healthcare employees believe in the mission of their institutions and perceive their leaders as equitable, supportive and fair, they stay with the organizations in which they work, stay committed in times of crisis and are always striving for excellence in performance. Additionally, researchers posit that organizational commitment can moderate the relationship between job satisfaction and engagement, creating a context where healthcare workers are willing to invest extra discretionary effort, originality, and dedication into their work (Folami & Bammeke, 2022).

As a concept, employee engagement (vigor, dedication, and absorption at work) has also gained traction among researchers of the healthcare workforce (Finney et al., 2023). Engagement increases not only day-to-day job performance but also long-term career sustainability, reducing stress and burnout, significant contributors to turnover. High engagement can also serve as a protective buffer against the impact of high patient demands in health systems, which are under widespread resource constraints and workforce shortages, conditions that are being further aggravated by global health crises. Engaged employees are better placed to respond to changing needs, adopt new technologies, and maintain quality standards in challenging environments (Poku et al., 2023).

On the flip side, turnover intentions endanger organizational stability and service continuity. The literature has long affirmed the negative impact of turnover on patient

satisfaction, care quality, and institutional reputation by disrupting continuity of care and putting more pressure on staff who remain (Carollo et al., 2021; Xerri & Brunetto, 2022). It is essential for organizations to pinpoint the precursors of turnover intentions, especially in relation to the influence of job satisfaction and organizational commitment, to design effective retention strategies. Studies suggest that in doing so, we can reduce turnover intentions by addressing the work climate, professional development opportunities, and internal communication, ultimately resulting in a more stable, highly-functioning workforce (Wong et al., 2023).

All together they show the complexity and interrelatedness of human resource issues in HCOs. As hospitals and health systems contend with an increasingly uncertain landscape, lessons learned in this challenging empirical environment can inform evidence-based management practices. This understanding allows leaders to create integrated strategies that promote a healthy, engaged and committed employee force, ultimately reducing turnover intentions.

Objectives

1. To investigate the job satisfaction among the Nursing, Administration, and Medical Staff in healthcare industry.
2. To examine the effect of Job Satisfaction on Organizational Commitment among healthcare personnel.
3. To examine the effect of Job Satisfaction on Employee Engagement, controlling for Age and Tenure.
4. To investigate whether Organizational Commitment mediates the relationship between Job Satisfaction and Turnover Intentions.

To compare the mean level of Job Satisfaction across three hospital departments

Analysis 1: ANOVA

Table 1.1: Descriptive Statistics for Job Satisfaction by Department (N = 324)

Department	n	Mean (Job Satisfaction)	SD
Nursing	108	4.23	0.56
Administration	108	4.05	0.62
Medical Staff	108	4.1	0.58
Total	324	4.13	0.59

Table 1.2: One-Way ANOVA Results for Job Satisfaction by Department

Source	SS	df	MS	F	p-value
Between Groups	2.15	2	1.075	3.13	0.045*
Within Groups	110.31	321	0.344		
Total	112.46	323			

An ANOVA tests is used to identify if there were statistically significant differences in means in job satisfaction between three hospital departments (Nursing, Administration, and Medical Staff). The Nursing department scored highest in terms of job satisfaction ($M = 4.23$, $SD = 0.56$), the Medical Staff department second ($M = 4.10$, $SD = 0.58$) and the Administration department scored ($M = 4.05$, $SD = 0.62$), as evidenced by the descriptive statistics (Table 1.1). Though the average differences might seem small, ANOVA could tell us whether those differences are more likely real group differences or just flukes. An ANOVA indicated a statistically significant difference between the three departmental groups, $F(2, 321) = 3.13$, $p = 0.045$; see Table 1.2. As the p-value under 0.05, you can infer that at least one of the departments is different in job satisfaction from the others. So the finding suggests that the factors in departments may influence what employees believe about their job environment, rewards and satisfaction. So after our exploration, we can say that if we look at its mean values inclusive as well, it is necessarily indicating a higher level of Satisfaction with Job in Nursing department members, and these results suggest that they can be statistically more satisfied from Job, than their counterparts in Administration department. It is important for hospital management and human resources departments to understand these differences and be able to use these targeted interventions (improved workplace support, broader or enhanced professional development opportunities, policy changes) to increase job satisfaction in potentially the lower domains. To summarize, the ANOVA results indicate that department-specific factors significantly shape the satisfaction levels of staff employed in the hospital, illuminating the comparative effects of different departments on the overall wellbeing of employees.

To determine the relationship between Job Satisfaction and Organizational Commitment among hospital employees.

Analysis 2: Correlation

Table 2.1: Descriptive Statistics for Variables (N = 324)

Variable	Mean	SD
Job Satisfaction	4.13	0.59
Organizational Commitment	4.28	0.63

Table 2.2: Pearson Correlation Matrix

	1. Job Satisfaction	2. Organizational Commitment
1. Job Satisfaction	1	0.52**
2. Organizational Commitment	0.52**	1

To determine the association between job satisfaction of hospital employees and their organisational commitment, Pearson correlation analysis was employed. Job satisfaction scores ($M = 4.13$, $SD = 0.59$), organizational commitment ($M = 4.28$, $SD = 0.63$): TABLE 2.1. Table 2 Descriptive statistics for job satisfaction and organisational commitment As shown in TABLE 2.1, the means of the two variables; organizational commitment and job satisfaction were above average. This implies that, overall, hospital employees feel satisfied with their work and are committed to their employing organization. Identifying Relationships — Correlation Looking at the correlation matrix (see Table 2.2), we can observe that there is a moderate-to-strong positive relationship between job satisfaction and organizational commitment ($r = 0.52$, $p < 0.01$). This correlation coefficient of 0.52 indicates that as the perceived level of employees' job satisfaction increases, the level of organizational commitment that the employees exhibit also tends to increase. Put, those who are more satisfied not only with their positions but also with their work environments and overall work conditions are naturally more loyal and want to stay with the institution. What may be practically most useful about this finding, however, is that it points out the importance of people making sure they help to create a supportive and interesting culture in their workplace as well. It is widely presumed that efforts to enhance job satisfaction—by providing prospects for growth

in professional knowledge and skills, rewards for excellent performance, appropriate value of the job and a favourable organisational environment—will become conducive to improved organisational commitment. As a result, employees with increased levels of connectedness and commitment are likely to stay with the hospital long-term, yielding stable workforce outcomes, better quality patient care and overall improved organizational effectiveness.

To examine the effect of Job Satisfaction on Employee Engagement, controlling for Age and Tenure.

Analysis 3: Regression

Table 3.1: Descriptive Statistics for Variables (N = 324)

Variable	Mean	SD
Job Satisfaction	4.13	0.59
Employee Engagement	4.35	0.57
Age (years)	36.2	8.1
Tenure (years)	7.4	5.2

Table 3.2: Multiple Regression of Job Satisfaction Predicting Employee Engagement Controlling for Age and Tenure

Predictor	B	SE(B)	β	t	p-value
Constant	2.85	0.28	—	10.18	<.001
Age	0.002	0.003	0.05	0.67	0.503
Tenure	0.007	0.004	0.1	1.75	0.081
Job Satisfaction	0.36	0.05	0.48	7.2	<.001**

Model Statistics: $R^2 = 0.29$, $F(3, 320) = 44.83$, $p < .001$.

Utilizing multiple regression to determine whether job satisfaction predicted employee engagement controlling for age and tenure. Particularly as detailed in the descriptive statistics (section 3.1) the job satisfaction level ($M = 4.13$, $SD = 0.59$) and employee engagement level ($M = 4.35$, $SD = 0.57$) were relatively high. In this sample,

the 104 staff members were on average 36.2 (SD = 8.1) years-old and had been working for the organization for an average of 7.4 (SD = 5.2) years. The output of the regression model presented in Table 3.2 indicates that job satisfaction is a significant predictor of employee engagement. Holding constant age and tenure, job satisfaction had a significant positive effect ($\hat{\alpha} = 0.48$, $p < .001$, meaning that there is a positive correlation between job satisfaction and employee engagement; the higher the job satisfaction, the higher the employee engagement. Age ($\hat{\alpha} = 0.05$, $p = 0.503$) and tenure ($\hat{\alpha} = 0.10$, $p = 0.081$) resultantly were not statistically significant predictors, suggesting further from this analytic that job satisfaction is a more proximal and impactful driver of employee engagement than the demographic variables in question. The overall model accounted for approximately 29% of the variance in employee engagement ($R^2 = 0.29$, $F(3, 320) = 44.83$, $p < .001$). These findings underline the importance of investing in positive workplaces — those that improve how safe, satisfied and supported (by leaders, recognition, resources and alignment with goals) employees feel in different areas of their work. The mental and emotional attachment to work will increase, and employees will develop a sense of motivation and commitment towards the organisation as job satisfaction increases.

To investigate whether Organizational Commitment mediates the relationship between Job Satisfaction and Turnover Intentions.

Analysis 4: Mediation

Mediation Model: Job Satisfaction (X) → Organizational Commitment (M) → Turnover Intentions (Y)

Table 4.1: Descriptive Statistics for Mediation Variables (N = 324)

Variable	Mean	SD
Job Satisfaction (X)	4.13	0.59
Organizational Commitment (M)	4.28	0.63
Turnover Intentions (Y)	2.41	0.8

Table 4.2: Mediation Analysis Results
(Using Ordinary Least Squares and Bootstrap)

Path	B	SE(B)	t	p-value
$X \rightarrow M$ (JS $\rightarrow$ OC)	0.58	0.06	9.67	<.001**
$M \rightarrow Y$ (OC $\rightarrow$ TI) controlling for X	-0.45	0.08	-5.63	<.001**
$X \rightarrow Y$ (JS $\rightarrow$ TI) without M	-0.32	0.07	-4.57	<.001**
$X \rightarrow Y$ (JS $\rightarrow$ TI) with M in model	-0.06	0.09	-0.67	0.506

Bootstrap Indirect Effect ($X'!M'!Y$): B = -0.26, 95% CI [-0.36, -0.18], $p < .001$.

Organisational commitment mediates the relationship between job satisfaction and turnover intentions.: a mediation analysis was performed. According to the descriptive indicators (Table 4.1), the employees of the sampled employees (N = 418) showed moderate (M = 4.13, SD = 0.59) to high levels of job satisfaction (M = 4.28, SD = 0.63) and organizational commitment. Their turnover intentions were low (M = 2.41, SD = 0.80) at the same time. The mediation analysis results are given in Table 4.2 showing a significant positive association between job satisfaction and organizational commitment ($X'!M$: B = 0.58, $p < .001$) and that they in turn are more likely to report higher organization commitment (Journal of Management, 2013). Moreover, when controlling for job satisfaction, organizational commitment was substantially related to lower intentions to leave the organization ($M'!Y$: B = “0.45, $p < .001$), showing that intention of outgoing decreases with commitment to organization. An unwise perspective of the relationship between job satisfaction and turnover intentions directly is to sum the mediator and state that when job satisfaction is low, turnover intentions are high ($X'!Y$ not mediated by M: B = “.32, $p < .001$). Nevertheless, the direct influence of job satisfaction on turnover intentions is no longer significant ($X'!Y$ with M: B = “0.06, $p = 0.506$) in the model including organizational commitment. That means organization commitment mediates the relationship between job satisfaction and employees’ intention to leave. Bootstrap analysis of the indirect effect ($X'!M'!Y$) provides further evidence that complete mediation had occurred. The indirect effect was significant (B = “0.26, 95% CI [“0.36, “0.18], $p < .001$), indicating that the effect of job satisfaction on turnover intentions was largely explained by changes in organisational commitment. Put differently, employees feel satisfied with their jobs leading to a stronger organisational identity and similarly; water protects employees from leaving the organisation. These findings not only emphasize the significance of job satisfaction as an employee retention strategy, but are also noteworthy in terms of the commitment and loyalty fostered in the workplace.

Findings of the Study

1. ANOVA (Job Satisfaction Across Departments):

A one-way ANOVA revealed significant differences in mean job satisfaction among the three hospital departments (Nursing, Administration, Medical Staff): $F(2, 321) = 3.13, p = .045$. Post-hoc tests indicated that the Administration department reported significantly higher job satisfaction than the Nursing department.

2. Correlation (Job Satisfaction and Organizational Commitment):

A Pearson correlation analysis showed a moderate, positive relationship between job satisfaction and organizational commitment ($r = 0.52, p < .01$). This suggests that as employees' job satisfaction increases, their organizational commitment tends to rise.

3. Regression (Effect of Job Satisfaction on Employee Engagement Controlling for Age and Tenure):

A multiple regression analysis examined the impact of job satisfaction on employee engagement while controlling for age and tenure. The model was significant, $R^2 = 0.29, F(3, 320) = 44.83, p < .001$. Job satisfaction emerged as a strong predictor of employee engagement ($\hat{\alpha} = 0.48, p < .001$), while age and tenure were not significant predictors.

4. Mediation (Organizational Commitment as a Mediator):

A mediation analysis assessed whether organizational commitment mediated the relationship between job satisfaction and turnover intentions. Job satisfaction significantly predicted organizational commitment ($B = 0.58, p < .001$), which in turn significantly predicted lower turnover intentions ($B = -0.45, p < .001$). The previously significant direct effect of job satisfaction on turnover intentions ($B = -0.32, p < .001$) became non-significant ($B = -0.06, p = .506$) upon including organizational commitment. The bootstrap indirect effect was significant ($B = -0.26, 95\% \text{ CI } [-0.36, -0.18], p < .001$), indicating complete mediation.

These findings demonstrate that department type influences employee job satisfaction, higher job satisfaction is associated with more outstanding organizational commitment, job satisfaction strongly predicts employee engagement even when controlling for demographics, and organizational commitment fully mediates the relationship between job satisfaction and turnover intentions.

Conclusion

The results from this study reinforce the crucial significance of nurturing a beneficial and supportive environment in order to promote staff health and organizational welfare in the hospital context. First, the differences in job satisfaction observed across

departments showcase the importance of conducting department-specific interventions, as staff working in “Administration” reported greater satisfaction with their jobs compared to their counterparts in “Nursing,” indicating that contextual conditions, resources and management practices shape how employees evaluate their work experiences. Second, the strong positive correlation between job satisfaction and organizational commitment suggests that positive interventions to improve employees’ feelings of satisfaction-like recognition programs, professional growth opportunities, and fairer workload allocation-can bolster their loyalty and sense of attachment to the hospital. This assumption is further supported by the regression analysis, indicating that job satisfaction is a strong predictor of employee engagement when controlling for demographic variables, including age and tenure. This finding suggests that the ability of intrinsic job-related factors -as opposed to employee background -to engage workers in their jobs is more significant.

In conclusion, the mediation analysis indicates that the link between job satisfaction and turnover intentions is fully mediated by organizational commitment. When feeling positive about their work, employees are more committed to the organisation, leading to minimise their tendency to facts. Arguably, this pathway is not only wise in terms of transient outcomes, such as engagement and morale, but it is prudent as a strategic lever to address longer-term retention-linked problems and organisational stability overall. In summary, these findings are of practical importance to hospital administrators and policymakers. Focusing on the drivers of job satisfaction, especially in terms of supportive leadership, career development opportunities, fair compensation and recognition, can create a virtuous cycle of increased engagement and commitment and reduced turnover intentions. A holistic approach to wellbeing creates a sustainable environment that translates to more effective workforce management, improved patient outcomes, and a stronger healthcare organization.

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NPS as A Scheme for Non-Government Employees: Exploring the Outlook

Discipline: Commerce

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Abstract

National Pension Scheme (NPS) designed to provide financial security as well as stability in retirement for individuals and it is an Indian government-sponsored pension program. In the year 2004 it was launched, the main aim of NPS is to encourage long-term investment and savings for retirement and to create a pension system with sustainability for all citizens. This is an important initiative in the Indian financial system, offering various benefits like tax incentives and flexible investment options. Employees who are not civil servants lack information on the National Pension plan or the benefits of joining it and how to do so. For this reason, some employees take it and as such, those who do are not prepared for retirement. What they fail to do is to ensure their stability in finance by not getting enough information. This is further compounded by the fact that employers and policymakers are failing to adequately communicate the advantages, the worth, and how the scheme operates. This study highlights a significant lack of non-government employee participation, despite the scheme's clear benefits like tax benefits, flexible options for investment, and long-term financial security. To bridge this gap, it is essential to implement enhanced awareness campaigns, simplify the enrolment process, and involve employers more actively by offering incentives and integrating NPS contributions into payroll systems. Promoting financial literacy and introducing more flexible, affordable contribution options can make the NPS more accessible and appealing. By addressing these barriers, it significantly improves participation rates among non-government employees, ensuring better financial security in their retirement years.

Key words: NPS, PRAN, PFRDA

Introduction

In this present era people are living longer and this has made it very important to plan for retirement. In this regard, the governments have come up with the National Pension Scheme. These schemes provided ways by which people could save for their retirement through contributions made to the arrangements and usually supported by employers together with government incentives. But there are civil servants, who are unaware of these schemes, or they are not concerned with it, this in turn impacts their planning and preparations when they are out of their working life retirement period. The NPS is a pension scheme wherein the central government of India has intervened with an aim of providing the pensioners a stable and efficient source of income. In January 2024 NPS was started, which aims to create pension like environment for every citizen of the country by offering long term corpus and investment which is required in their post-retirement period. It has been referred as a most important leap in the financial sector of India. The NPS has got several benefits such as tax exemptions and can be invested in various flexible forms.

Knowledge of these factors hence assists policymakers and employers develop appropriate modality of extending a better understanding of the benefits accruing from NPS to non-governmental employees. There is much that can be done to add extra years of planning and to mobilize society so that cases of lack of financial security in the post-retirement age are mitigated. When you retire, it's possible to withdraw up to 60 percent of your savings by the age of 60. The rest 40% can be spent only for the purchase of annuity and it will bring monthly pension. This setup provides you with cash on the spot as well as a continuous flow of income in the future. This is also an added advantage since the NPS is transferable and therefore you can move your account to another organization once you change jobs or move to another region. Pension Fund Regulatory and Development Authority (PFRDA) is the apex authority of NPS. It is managed by several fund managers, ensuring that your investments are carefully handled and spread out to help grow your retirement savings.

Review of Literature

- Jariwala P. T. (2019) The study on the National Pension Schemes performance in India is low-cost, flexible retirement savings scheme. In the year 2009 it was available for all the citizens. The NPS was originally launched in 2004 for government employees only but is now available with multiple fund managers. It involves the assessment of tier-I schemes while making recommendations for investors in a bid to enable them to get a better return rate.

- Mettle F. Olaedo E. K and Asiedu L(2021) This paper has the following objective of forecasting pension costs of Ghana's SSNIT using a detailed stochastic model. It categorizes members into five categories and integrates several processes to estimate pension scheme's surpluses and solvency. The model proved to be quite reliable in the estimated values of surplus and offers the ability to perform sensitivity analyses that test various possibilities. Besides, it uses more variables than other models, which increase the accuracy of estimates. The study also revealed that the SSNIT would still in a position to manage its affairs without defaulting on its responsibilities even if pensions were doubled.
- Nandkumar Baburau Bodhgire(2021) this study, the researcher sought to look at NPS which was made compulsory for both state and central government employees who joined the service after 2005. Despite the fact, the scheme was launched in 2006, many of the government employees are not aware of the scheme. This paper focuses on the roles of the NPS and compares pension fund managers' performance from their returns in 2020. This paper applies the ANOVA tool to analyse differences in returns offered by various pension fund managers. The conclusion is drawn in this paper by saying that; this paper also revealed that the pension fund of HDFC was among the most-performing funds in returns.
- Singh K (2022) This paper was undertaken to understand the familiarity of government employees at Ambala and Karnal administrative divisions of Haryana, India, with regard to General Provident Fund and National Pension Scheme. In a study of 250 survey respondents 205 valid. In this study descriptive statistics were adopted. Reliability and validity of the data were established with a Cronbach's Alpha of .871. All NPS account holders did not fully comprehend the NPS Tier II account investments options, the penalty fee for having an insufficient balance and its various options.
- Maithri and Panakaje N (2023) This paper revolves around Investment pattern and challenges in India's National Pension Scheme (NPS). It discovers that many Indians save money, however, few invest for the retirement through factors like matters of ignorance. The NPS gives freedom to the people to decide where to invest in different forms of assets. Nevertheless, some key challenges are identified, for instance, lack of adequate financial literacy on retirement products. Therefore, according to the research goals and objectives, secondary sources will be used in order to educate potential investors on the opportunities and risks associated with the NPS as well as for policymakers to improve the retirement investment plans. The study has some limitations in that the researcher did not use primary data.

Statement of the Problem

Employees working in various fields have a lack of knowledge about the National Pension plan or the importance of joining it and how to do so. For this reason, few people take it and as such, those who do are not prepared for retirement. What they fail to do is to ensure their financial stability by not getting enough information. This is further compounded by the fact that the policymakers and employers are failing to adequately communicate the worth, the advantages and how the scheme operates. Main aim of the study is to find out any awareness problems in NPS among employees in the government sector. The study aims at establishing the factors that may cause this lack of understanding in the hope of attaining an improved awareness. The aim is to provide recommendations that can be made by policymakers or employers of organizations to enhance the awareness levels of the employees about the scheme to encourage them to participate in the scheme.

Objectives

1. Assess the awareness level among non-governmental employees about the national pension scheme.
2. To explore the perceptions and attitudes of non-governmental employees towards national pension scheme.

Scope of the Study

Study focused on establishing the level of awareness and also the level of participation of the employees in the non-governmental organizations in the country with respect to pension scheme and factors determine these aspects. Study is limited to Kottayam district only.

Hypothesis

H0: There is no significant difference in the level of awareness among non-governmental employees regarding National Pension Scheme.

H1: There is a significant difference in the level of awareness among non-governmental employees regarding NPS.

Research Design

This study is descriptive. Population of the study includes Non -Government Employees in Kottayam. Convenience sampling method is used for collecting data. 100 Non-Government Employees in Kottayam were selected for study.

Analysis and Interpretation

Familiarity of the National Pension Scheme

Category	No. of respondents	Percentage
Very familiar	25	25!
Somewhat familiar	27	27!
Not very familiar	30	30!
Not familiar at all	12	12!
Never heard of it	6	6!
Total	100	100!

Source: primary data

The table 1 shows the familiarity of employees with the concept of National Pension Scheme, from this 25! of the respondents were very familiar with the concept, 27! of the respondents were somewhat familiar, 30% of the respondents were not very familiar, 12% of the respondents were not familiar at all and 6% of the respondents were never heard of the concept.

Familiarity with the concept of the NPS

CHI-SQUARE TEST

To identify if there is any significant difference between the level of awareness among non-governmental employees regarding the National Pension Scheme uses chi-square test is conducted with the following hypothesis:

H0: "There is no significant difference in the level of awareness among non-governmental employees regarding the National Pension Scheme".

H1: "There is a significant difference in the level of awareness among non-governmental employees regarding the National Pension Scheme. "

Calculation of Chi Square: Private Company

Observed Values		Expected Values		O-E
(O-E) ²	(O-E) ² /E			
21	15.1	5.9	34.82	2.31
14	15.7	-1.7	2.89	0.18
13	15.7	-2.7	7.29	0.46
6	6.7	-0.7	0.49	0.07
2	2.8	-0.8	0.64	0.23
Total	3.25			

Source: primary data

Calculation of Chi-Square: Non-Profit Organization

Observed Values	Expected Values	O-E	(O-E) ²	(O-E) ² /E
1	1.1	-0.1	0.01	0.009
1	1.1	-0.1	0.01	0.009
1	1.1	-0.1	0.01	0.009
0	0.5	-0.5	0.25	0.5
1	0.2	0.8	0.64	3.2
Total	3.727			

Source: primary data

Calculation of Chi-Square: Self-Employed

Observed Values	Expected Values	O-E	(O-E) ²	(O-E) ² /E
3	8.9	-5.9	34.81	3.91
11	9.2	1.8	3.24	0.35
11	9.2	1.8	3.24	0.35
6	4.0	2	4	1
2	1.7	0.3	0.09	0.05
Total	5.66			

Source: primary data

Chi-Square test

Observed Values	Expected Values	O-E	(O-E) ²	(O-E) ² /E
2	1.9	0.1	0.01	0.005
2	2.0	0	0	0
3	2.0	1	1	0.5
0	0.8	-0.8	.64	0.8
0	0.4	-0.4	0.16	0.4
Total	1.705			

Source: primary data

$$\Sigma (O-E)^2/E = 14.342$$

$$\text{Degree of Freedom} = (4-1) * (5-1) = 3*4 = 12$$

Significance level : 0.05

Table Value: 21.026

Chi-Square test

Employment Sector	Familiarity with the concept National Pension Scheme					Row Total	Chi square Statistics
	Very familiar	Some what familiar	Not very familiar	Not familiar at all	Never heard of it		
Private Company	21	14	13	6	2	56	3.25
Non-profit Organization	1	1	1	0	1	4	3.727
Self Employed	3	11	11	6	2	33	5.66
Others	2	2	3	0	0	7	1.705
Total	27	28	28	12	5	100	14.342

Source: Primary data

We can conclude from the analysis made through chi-square is that the test statistic is 14.342, the table value is 21.026 of nine degrees of freedom at 5% level of significance. The test statistic is small. Hence, we reject the H₁. Therefore no significant difference in the level of awareness among non-governmental employees in the case of NPS.

Findings and Conclusion

The research on National Pension Scheme (NPS) highlights a significant lack of participation among non-government employees, despite the scheme's clear benefits like tax advantages, flexible investment options, and long-term financial security. It was observed that the most of the respondents are not familiar with the concept of NPS. It is clear from the chi-square test analysis is that there is no significant difference in the level of awareness among non-governmental employees regarding the National Pension Scheme. To bridge this gap, it is essential to implement enhanced awareness campaigns, simplify the enrolment process, and involve employers more actively by offering incentives and integrating NPS contributions into payroll systems. Additionally, promoting financial

literacy and introducing more flexible, affordable contribution options can make the NPS more accessible and appealing. By addressing these barriers, we can significantly improve participation rates among non-government employees this scheme.

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Analysis of the Influence of Organizational Culture on Employee Performance through Job Satisfaction and Organizational Commitment as Mediating Factors: Empirical Evidence from the Manufacturing Sector

Discipline: Management

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Abstract

The paper is prepared on the basis of the study conducted in a manufacturing company in India. The study was performed to gather the influence of organizational culture on performance of employees. It has analyzed whether job satisfaction and organizational commitment intercede and facilitate the relationship between organizational culture and employee performance. The data was collected from seventy full time employees using survey method through questionnaire. The study tests two forms of relationship (direct and mediating) which provides final explanation for the association amongst organizational culture and employee performance. Data was analyzed through Correlation and Regression analysis. Partial Least Squares Structural Equation Modeling Technique (PLS-SEM) was employed to analyze the data. The study exposed that organizational culture has moderate positive effect on employee performance. Job satisfaction has positive interceding influence on association between organizational culture and performance of employees. Organizational commitment has positive mediating effect on association amongst organizational culture and performance of employees and has influence on performance. The variables viz., organizational culture, performance of employees, job satisfaction and organizational commitment are having significant association between each other with value of positive moderate correlation.

Keywords: organizational culture, organizational commitment, job satisfaction, employee performance

Introduction

Culture is what a group learns over a period of time as that group solves its problems of survival in an external environment and its problems of internal integration (Schien, 1990). It is the totality of values, expectations and practices of an organization.

This culture directs the thoughts, actions and behavior of the staff of the enterprise. In other words, culture means group of traits deciding the behavior of a company what it is and decides its uniqueness among the other players in the industry. Good cultural practices enhance the employee performance; while undesired cultural practices thwart the performance of employees. Organizational culture is replicated in every feature of the business; from time consciousness and punctuality to employee rewards and benefits. It should be kept in mind that congruence or alignment between the work place culture and employees' values and belief systems bring out better employee and organizational performance. Companies can take advantage of its unique culture for attracting and retaining the talents. 77 percent of workers consider a company's culture before applying and almost half of employees would leave their current job for a lower-paying opportunity at an organization with a better culture (Martins, 2021). The culture of an organization is also one of the top indicators of employee satisfaction and one of the main reasons that almost two-thirds (65%) of employees stay in their job (Martins, 2021). Trust in each other, teamwork, innovation and experimenting with new ideas and emotional security are some of the outcomes of positive work culture. Hence it is important to establish a highly desirable work place culture to bring out the best performance from employees.

Objectives of the Study

This study was carried out to reach the following two objectives:

1. To examine the influence of organizational culture on employee performance
2. To know whether job satisfaction and organizational commitment intercede the association amongst organizational culture and employee performance

Literature Review

As mentioned above, the major drive of this study is to ascertain whether there is association amongst organizational culture and employee performance using job satisfaction and employee commitment as mediating variables. The literature cited below exhibit organizational culture and its impact on employee performance. These are few of the contemporary studies, conducted to ascertain the role of organizational culture on performance of employee. There are various empirical researches that support the association amongst organizational culture and employee performance specifically. Hence the researcher has gone through the various studies on organizational culture and employee performance and tried to figure out the influence of culture on the performance of employees with the help of following research literature:

- Zia & Khan (2019) identified that organizations have different kinds of culture, depending upon its strength, which have considerable impact on attitudes and

behavior of the employees, their job performance, satisfaction and even of the employee turnover.

- Kawiana (2018) determined the influence of organizational culture, employee satisfaction and personality on organizational commitment and employee performance. The results obtained were: (1) the influence of organizational culture on organizational commitment was significant; (2) The influence of employee satisfaction on organizational commitment was significant; (3) The influence of personality on organizational commitment was significant; (4) The influence of organizational culture on employee performance was significant; (5) The influence of employee satisfaction on employee performance was significant; (6) The influence of personality on employee performance was significant; and (7) The influence of organizational commitment on employee performance was significant.
- Nusari *et al.*, (2018) examined the impact of project management assets (value and imitability) and organizational culture (individualism) on employee performance (quality). There were two main results: first, project management assets (value and imitability) have positive impact on employee performance (quality); second, organizational culture (individualism) has negative impact on employee performance (quality).
- Odiakaose (2018) believes that every organization has something unique about the way it operates. He did an in-depth review of the relationships between organizational culture parameters and individual performance, organizational performance and sustainability. The ways an organization operates vis a vis, its beliefs, values and assumptions is what is conceptualized as organizational culture, he asserts.
- Durgadevi *et al.*, (2017) opines that organizational culture is a complex phenomenon and is formed in diversity of ways, it might initiate from the challenges and obstacles that organization features; it may perhaps be an intentional creation of the management and employees working in the organization. An organization that practices either a clan or support culture tends to experience high performance and satisfaction levels; this type of culture encourages employees to be innovative and also supports socialization and teamwork.
- (Stephen *et al.*, 2017). They examined the impact of organizational culture on employee performance and job satisfaction, using Niger Delta University as a case study. Majority of the respondents agreed that organizational culture does have an impact on performance and satisfaction levels of employees.

- Gochhayat *et al.*, (2017) explored how a strong or weak organizational culture (OCL), irrespective of its taxonomy, affects organizational effectiveness (OE) in Indian technical education. It also examined the mediating role of organizational communication (OCM). Data were collected from 167 heads of engineering and management schools on OCL and OE and 334 of their subordinates on OCM through a questionnaire survey. Results indicated that organizations with strong and deep-rooted culture perform more effectively than organizations with weak culture. The effect of OCL passes to institutional effectiveness through OCM. Hence, the researcher suggests that higher educational institutions need to focus on strengthening OCL and OCM in order to improve their effectiveness.
- Chaudhary & Singh (2017) are of the opinion that organizational culture can be seen as an organization specific system of widely shared values and assumptions that give rise to typical behavior patterns. After an extensive study in existing literature on organizational culture, they suggested to note the fact that with the advent of globalization and companies crossing border, culture has become extremely fluid in nature. Therefore, organizations must adapt to this rise in new cultural community emerging in global businesses and accept this cross-verging of cultures across the globe.
- Nikpour (2016) investigated the mediating role of employee's organizational commitment on the relationship between organizational culture and organizational performance. The findings of the research indicated that suggested model had appropriate fit and organizational culture beyond its direct impact exerted indirect impact on organizational performance through the mediation of employee's organizational commitment that the extent of indirect impact was significantly higher than direct impact.
- Paschal and Ismail (2016) studied the impact of organizational culture on employee's performance in Singapore Telecommunication with the objective of measuring and establishing how organizational culture affects the performance of its employees. This research work has cleared the fact that frequent ritual activities in the organization has great and positive impact on employee's performance but other studies also can be carried out based on different organizations that have different organizational cultural system.
- Dorai Ponnu and Hassan (2015) investigated the influence of organizational culture on performance management in insurance industry. The results showed that there is significant and positive correlation between organizational culture and performance management.

- Daniel *et al.*, (2010) opine that there should be fit between the organization's culture and the strategic direction of the firm. Their study also established the relationship between the corporate culture and organizational performance.

Research Gap

Based on the review of literature presented above the gap found is that the authors have not discussed about, culture gap analysis. This analysis can help both the organizations and researchers to understand what the culture embodies in an organization.

Methodology

Descriptive correlational research design was employed in this study. The sampling techniques used to select employees for this survey was convenient sampling method. It was difficult to use simple probability sampling as most of the staff were not based in the office, but in different locations. Therefore, once the company granted the permission, researcher approached employees who were available in the office. Once the procedure is explained and when respondents gave their consent, the questionnaire was given and requested to complete it as truthfully as they can. The completed questionnaires were collected immediately after the respondents completed the questionnaire. The sample size for the study was 70. The respondents represent full-time working employees in the company. Primary Data was collected through Questionnaire using Google forms from 70 employees. The questionnaire was prepared based on the variables found from previous literature review and adding few variables which were omitted (as identified in research gap analysis). The questionnaire comprised of 5-point Likert scale to measure the influence of variables. (Where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree). The respondents were asked to give their opinion on organizational culture, commitment of the employees working in the organization and performance of the employees. This helps to have different response patterns when responding to questionnaires. Questionnaire is designed in three sections, that is, Section A (Demography), Section B (Organizational Culture) and Section C (Employee performance).

Variables of the study

Independent variable:

Organizational culture - Hofstede (1984) defines culture as the collective programming of the mind, distinguishing the members of one group or category of people from others. According to him, national and organizational cultures are phenomena of different structures. At the national level, cultural differences reside in values, while, at the organizational level, they reside in practices. Hofstede (2001) identified the following

dimensions of culture: Power distance, Uncertainty avoidance, Individualism / collectivism, Masculinity/femininity, long term orientation, Indulgence/restraint.

Dependent variable

Employee performance- Employee performance means the ability of employees to attain goals, personal / organizational, efficiently and effectively. There are certain parameters to be considered to know the impact of organizational culture on employee performances (Kotter and Heskett, 1992). These are employee participation, innovation and risk taking, reward system, openness of communication, and customer service orientation. A performance- criterion is also considered (Campbell, 1977; Robbins and Barnwell, 2002).

Mediating variables

Organizational commitment- “The degree to which an employee identifies with a particular organization and its goals, and wishes to maintain membership in the organization”, (Robbins, 2003). The dimensions considered are affective commitment, continuance commitment and normative commitment.

Job satisfaction - “Job satisfaction is a positive attitude and behavior at workplace and influence employees to commit to their job requirement” (Vroom, 1964). In human resource perspective, job satisfaction refers to a person’s feeling of satisfaction on the job, which acts as motivation to work. The various dimensions of job satisfaction are: satisfaction due to empowerment, job fulfillment, pay, work group, security, work facilitations etc.

Hypotheses

H1: Organizational culture has positive impact on employee performance

H2: Job satisfaction mediates the relationship between organizational culture and employee performance and has impact on employee performance.

H3: Organizational commitment mediates the relationship between organizational culture and employee performance and has impact on employee performance.

Scale Reliability

The value of Cronbach’s alpha for each variable is given in Table 1 and in Fig. 1 and Fig. 2:

Table 1 Cronbach’s alpha

Sl.No	Variables	Cronbach's alpha	Composite liability
1	Employee performance	0.770	0.817
2	Organizational culture	0.734	0.799
3	Job satisfaction	0.806	0.874
4	Organizational commitment	0.729	0.830

Here, all the four scales (Independent, Mediating and Dependent Variables) are reliable with the value more than 0.7.

Fig. 2 Scale Reliability (Cronbach's alpha)

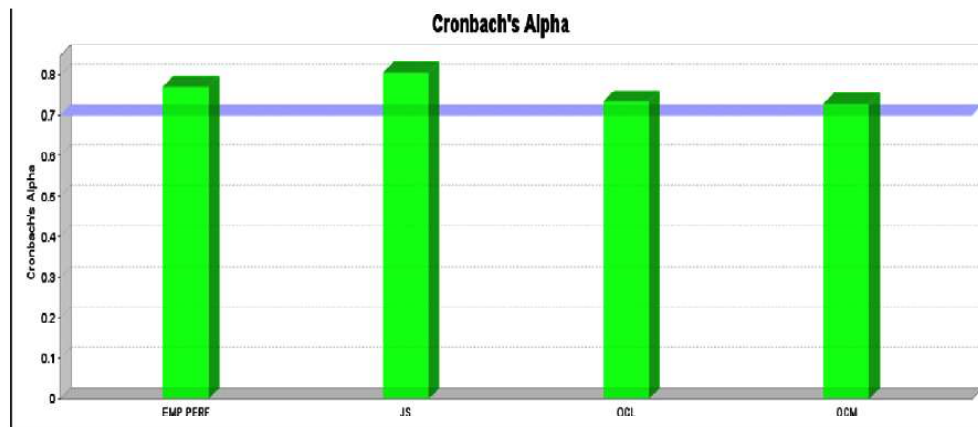
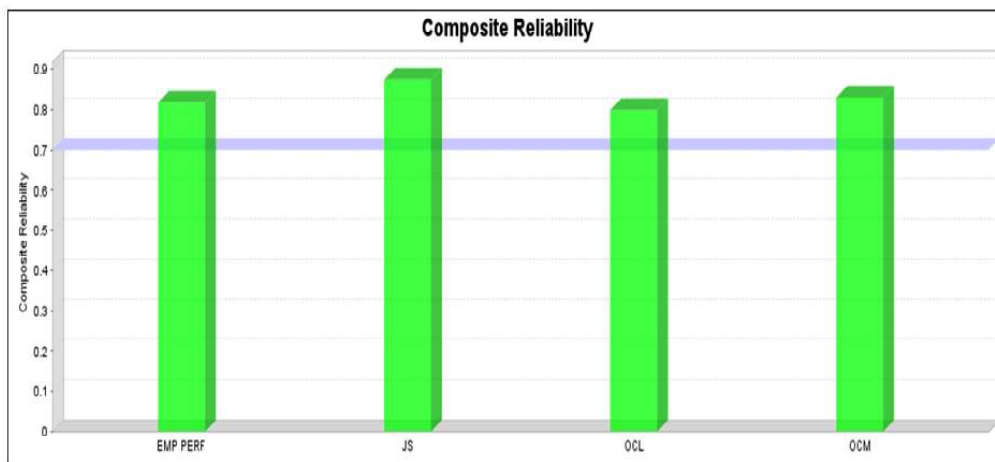


Fig. 3 Scale Reliability (Composite reliability)



Checking the Validity of the Model

Convergent Validity

The extent to which the items or constructs converge is called convergent validity. The indicators of convergent validity are item loadings, construct reliability (CR) and average variance extracted (AVE). Generally, item loadings, construct reliability and AVE should be greater than 0.5. An AVE of less than 0.5 indicates that more error remains in the items. Construct reliability is a measure of internal consistency of the

items. All the constructs showed adequate convergent validity measures confirming the convergent validity. AVE, construct reliability and communality are all well above the threshold value of 0.5 indicating the items / variables converge under a single construct.

Table 2: Convergent validity

SL. No.	VARIABLES	CRONBACH'S ALPHA	COMPOSITE RELIABILITY	AVERAGE VARIANCE EXTRACTED (AVE)
1.	Employee performance	0.770	0.817	0.546
2.	Organizational culture	0.734	0.799	0.635
3.	Jobsatisfaction	0.806	0.874	0.537
4.	Organizational commitment	0.729	0.830	0.550

Note: Convergent validity - more than 0.5

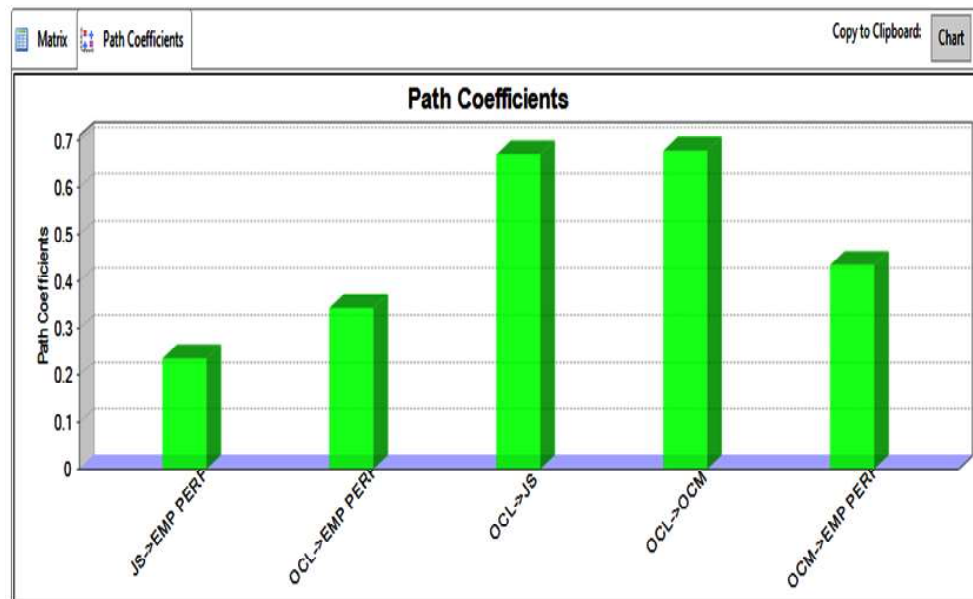
Descriptive Analysis

a) Path Coefficient

The study tests two forms of relationship (direct and mediating) which provides final explanation for the relationship between organizational culture and employee performance. InPLS algorithm we get standardized path coefficient same as multiple regression. Path coefficients like standardized regression coefficients can be larger than one. The figure given below also shows the relationship between the variables as mentioned in hypotheses.

Table 3: Path Coefficients

Table3 Path	Employee performance Coefficients	Jobsatisfaction	Organizational culture	Organizational commitment
Employee performance	-	-	-	-
Jobsatisfaction	0.235	-	-	-
Organizational culture	0.342	0.669	-	0.667
Organizational commitment	0.434	-	-	-

Figure10: Path coefficients**a) Regression****Path Coefficients****Table 4: Rvalue**

MODELSUMMARY		
	RSquare	RSquare Adjusted
EMPPERF	0.811	0.802
JS	0.447	0.439
OCM	0.458	0.450

Predictors (constant): Organizational culture.

AnovaTest

An Anova test is the way to find out if the survey or experiment results are significant. It helps to figure out if one needs to reject the null hypothesis or accept the alternate hypothesis. One -way Anova is used here, as the research has one independent variable (organizational culture converted into nominal scale).

Table 5: Anova

	df	ss	Ms	F	Significance F
Regression	3	9.7	3.2	38.3	0.0
Residual	66	5.6	0.1		
Total	69	15.3			
Dependent variable: employee performance Predictors (constant): organizational culture					

The significant value is to be less than 0.05 to be qualified/accepted for every variable and hence there is positive influence on dependent variables.

a) Correlation

The correlation is classified into 2 categories, -1 to 0 which is negative correlation and 0 to +1 which is positive correlation. And 0 to 0.4 is considered to be weak correlation, 0.4 to 0.7 which is considered to be moderate correlation and 0.7 to 1.0 is considered as strong correlation.

Table 6: Correlation

Correlations					
		OC	OCM	PF	JS
OC	Pearson Correlation	1			
	Sig.(2-tailed)				
OCM	Pearson Correlation	.54**	1		
	Sig.(2-tailed)	0			
PF	Pearson Correlation	.65**	.66**	1	
	Sig.(2-tailed)	0	0		
JS	Pearson Correlation	.53**	.55**	.67**	1
	Sig.(2-tailed)	0	0	0	
**.Correlation is significant at the 0.01 level (2-tailed).					
*.Correlation is significant at the 0.05 level (2-tailed).					

In its job satisfaction and employee performance results are the variables which have high impact on their relationship which is reported at 0.67**.

Positive weak correlation	None
Positive moderate correlation	Organizational culture& organizational commitment, employee performance & organizational commitment, job satisfaction and employee performance.

a) PLS-SEM

Reliability of data has been observed using Cronbach's alphas value. Data was analyzed through Correlation and Regression Analysis using Smart PLS tool. Partial Least Squares Structural Equation Modeling Technique (PLS-SEM) was employed to analyze the data. It is an emerging data analysis tool in business management, to handle small size data (Ringle *et al.*, 2005). This technique is more appropriate when research aims at testing existing theories and involves complex model structure. PLS-SEM involves two stages of analysis: measurement model specification and structural model evaluation. Measurement model specification assures that only constructs having good indicator loading, convergent validity, composite reliability and discriminant validity will be used in the structural model. Structural model evaluation is meant for assessing the path coefficient and testing their significance.

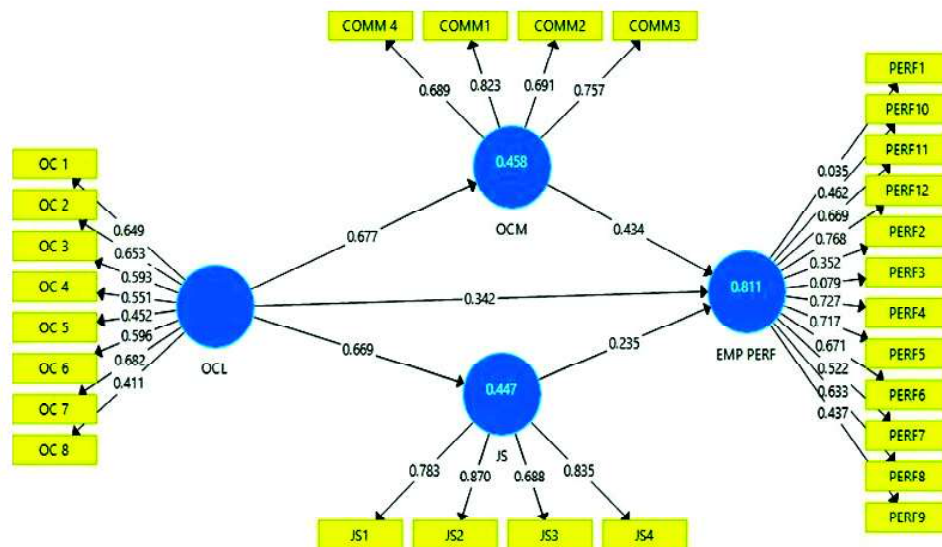


Figure11: Sem Model

Structural Model Analysis

Table 7: Structural Model Significance

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Significance Result
JS -> EMP PERF	0.235	0.236	0.103	2.287	0.023	**supported
OCL -> EMP PERF	0.342	0.338	0.084	4.076	0.000	**supported
OCL->JS	0.669	0.688	0.054	12.494	0.000	**supported
OCL->OCM	0.677	0.692	0.055	12.331	0.000	**supported
OCM->EMP PERF	0.434	0.438	0.095	4.576	0.000	**supported

Results

Showing the path coefficients along with their bootstrap values, T values

The t-value and beta coefficient for each of the connecting variables establishing validity and its strength between each other were measured with the help of partial least square structural equation modeling (PLS-SEM) using Smart PLS application

Checking structural path significance through bootstrapping calculation

*** $p < 0.01$; ** $p < 0.05$

The t-values (shown within brackets) help in identifying the existence of relationship between the constructs, while beta coefficient values (mentioned outside the brackets) explain the strength of the relationship between the constructs. The accepted limit for testing the significance through t-value in Smart PLS is > 1.96 . Therefore, significant relationship between variables is established wherever t-value is noted to be > 1.96 .

Findings and Conclusion

Findings

- The principal objective of this study was to analyze the impact of organizational culture on employee performance along with analyzing the mediating effect of job satisfaction and organizational commitment on the employee performance.
- In order to come up with valid research, the collected primary data has been analyzed through reliability test, correlation analysis and path coefficient analysis using smart PLS Software.
- The results of the path coefficient and bootstrapping for H1 model indicated a significant and positive relationship between the independent variable (organizational culture) and the dependent variable (employee performance), thus confirming the first condition of this model.

- **H1- Organizational culture has moderate positive effect on employee performance (Accepted).**
- **H2 and H3 -** Job satisfaction has positive mediating effect on relationship between organizational culture and employee performance. Organizational commitment has positive mediating effect on relationship between organizational culture and employee performance and has impact on performance. (Accepted)
- The variables viz., organizational culture, employee performance, job satisfaction and organizational commitment have significant relationship between each other with value of positive moderate correlation.
- The relationship between job satisfaction and employee performance is the highest correlation at .67**. The next strong correlation is organizational commitment and employee performance at .66**. But the least relationship is organizational culture and organizational commitment at .54**.
- The overall analysis of relationship identified amongst variables suggest that the correlation with each other has positive moderate relationship and also the test showed that no positive weak correlation or the negative correlation amongst the variables which explain there would be variables to understand organizational performance.
- The relationship between organizational culture and job satisfaction is the highest correlation (0.669)
- The impact of organizational culture on employee performance is moderately positive.

Suggestions

On the basis of analysis, results and findings the following recommendations are suggested:

- A workshop can be conducted to demonstrate employees that their involvement is valued and is important.
- Every aspect of business should be aligned in such a way that the employees contribute to the culture through collaboration and innovation.
- Employees should very well understand the working environment and organizational culture so that they can involve well into the culture of the company carrying their own perception and culture along.
- Conduct a periodic culture audit to evaluate whether management efforts towards culture is working.

- Training and development programs / mentorship programs can help building a positive workplace and also help in boosting employee morale.
- A behavioral interview can be a part of hiring the employees which can give the insight of the candidate's culture, behavior and whether they are job-fit.
- Company can make a unique identity which influences the transformation of their culture with the fast-moving world.
- As the company values work-life balance by providing the flexibility of work and other allowances, they can focus more on internal benefits so that talent gets attracted more.
- Usage of emotions can be used to bridge the cultural gap. Cultural evolution requires connections between strategy and culture, leaders and rest of the organization.
- Engage and empower with **AIL**- Authentic Informal Leaders, as they are the best way to hear the heartbeat of organization. These employees have a ground level view about the work in the organization.

Managerial Implication

By developing and understanding of organizational culture, organizational leaders can manage the culture to improve the employee performance. As strong culture can sometimes be difficult to change, these cultures should be fixed in short run. Selecting new hires that fit well into the organization is essential for motivation, job satisfaction, commitment and turnover. And as a manager, one action can be a role model that helps in creating the cultural values of ethics and positive culture. The suggestions given as per the research can also be implemented for the betterment of employees and organization. Leaders cannot expect to see results from the culture initiatives unless they connect with their organization at emotional level.

Limitations

Due to pandemic Covid-19, it was difficult to collect responses from most reliable sources within the office and also the end of financial year. As the ground staffs are at lower literary rate, the hard copies of forms were taken and got filled by explaining in multilingual ways.

Conclusion

The organization culture helps in internalizing joint relationships that leads to manage effective organizational processes. The culture of organization helps in improving performance. The positive association between culture and performance of employees

help in improving the business of the organization. The employee performance in the organization has strong impact of strong organization culture as it leads to enhance productivity. The norms and values of organization based upon different cultures influence on work force management. In an organization strong culture enables the effective and efficient management of work force. The net profit in an organization helps in enhancing performance of employees.

The common path for making perfect use of resources in same cultural association helps in positive development of organization. On basis of particular conditions, organizational culture is helpful in improving and providing competitive edge. The employee commitment and group efficiency help in improving performance leading to organization's sustainability. The nature and power of organization culture influence upon sustainability and effectiveness of organization. The study about the organizational culture and productive behavior of employees reveals that the workers were satisfied with their ability, co-operation, team work, involvement, supervisors, utilization of their skills and rewardsetc. The present culture is doing good but little changes can be helpful. Because of this favorable culture the employees show positive behaviors like high involvement, high commitment to the organization, highly motivated and highly flexible to the organizational changes etc.

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Financial Empowerment for Artisans: Leveraging Financial Markets for Handicraft Industry Growth

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Abstract

Traditional handicraft in India is now a way to support sustainable development, create jobs, and boost economic growth in rural areas. Indian handicrafts are gaining popularity each day due to their beauty, creativity and skilful craftsmanship. The roots of the Indian handicraft industry lie in the cultural heritage of the country and has huge economic prospects. This study aims to examine three critical aspects of the handicraft sector, the awareness of artisans regarding marketing strategies, the available marketing opportunities for empowering artisans, and the financial challenges faced by them. By enhancing financial literacy and facilitating access to resources, this approach fosters entrepreneurial growth, reduces income disparities, and preserves cultural traditions. The research directions contribute to the financial empowerment and market opportunities leveraging the growth of handicraft industry.

Keywords: Handicraft industry, Social Empowerment, Financial Literacy, Marketing strategy

Introduction

Indian handicraft industry is one of the prominent sectors in the economic, social and cultural context of the nation. The industry offers substantial contributions to the financial wellbeing of the rural population and acts as crucial source of foreign exchange earnings. It is a major component of the creative economy and showcases the traditional artistry, heritage, and local civilization. The Development Commissioner of Handicrafts describes handicrafts as hand-produced goods or goods evolved from basic tools that are more artistic and indicative of traditional values. Such products typically have utilitarian

looks based on traditions, creativity, and functionality as well as socially or religiously symbolic qualities (Majeed, 2018)

The handicraft industry is a significant contributor to the global economy, providing livelihoods for millions of artisans worldwide. In recent years financial markets have emerged as a critical enabler of economic growth and development. Access to financial markets can provide artisans with the necessary capital, financial services and economic opportunities to improve their livelihoods and expand their businesses. The handicraft sector is a dynamic and culturally rich industry, usually based on centuries-old traditions and craftsmen's skills. It plays an important role in maintaining cultural heritage and local economic development, particularly in developing regions. Despite its importance, artisans frequently encounter significant challenges in scaling their businesses due to limited access to financial resources, market linkages, and modern tools. These obstacles hinder their potential to compete in global markets and achieve sustainable growth.

Traditional craft practices, which have endured through generations, are now facing the challenges posed by rapidly changing market dynamics driven by digital technologies. These once self-sustaining crafts, which fulfilled the essential needs of village life, are undergoing significant shifts in their role and relevance in the modern world. Financial empowerment emerges as a transformative solution for addressing these challenges. By leveraging financial markets and innovative financial instruments, artisans can unlock capital for expanding their operations, modernizing production processes, and accessing wider markets. Integration into formal financial systems, coupled with strategic policy interventions, can enable artisans to transition from subsistence-level operations to robust entrepreneurial ventures.

India occupies a leading position in the supply of handicraft items to the global market. The handicraft industry of the country is extremely labour-intensive. It is largely cottage-based industry and dispersed across the country in rural as well as urban areas. Large number of handicrafts workers are involved in crafts work on part-time basis. The industry offers employment to over six million artificers (including those engaged in carpet making), which include a large number of women and people belonging to the impoverished sections of the society. In spite of the high potential for employment, the sector is economically significant in the angle of low capital investment, high rate of value addition, and high prospects for export and foreign exchange earnings. In the midst of countries having highest handicraft ratings, India occupies the largest number of handicrafts.

Bamboo Crafts in India

Bamboo is an extremely versatile resource, commonly used in building, paper making, scaffolding, agriculture implements, weaving, plywood and particle board production, furniture or stewed shoots, and even in medicine. With good resource management and technology, this fast-growing grass can be changed into a durable and sustainable material well-suited to building and many semi-industrial products. Across India, natural fibres have been used by various communities for generations. Historically, people have utilized different types of natural fibres based on what was locally available. With an abundance of such materials throughout the country, the potential for natural fibre-based crafts is vast. Bamboo, as one of these natural resources, stands out as a key material in this tradition.

Implementation of this is on the basis of the progress in research and development in technology, management and marketing domains. There is a large prospect for bamboo in accelerating the productivity, use of the state-of-the art techniques and technologies generates value addition and augment the product identifications. According to the Planning Commission of India (2003), the potential exists for economic activities worth INR 26000 crore, based of value-based products in manufacturing, construction, utility and craft products and more. Few instances of the wood alternatives and compound supplies are bamboo mat board, bamboo mat corrugated sheets, flattened bamboo boards and bamboo flooring. Bamboo is a raw material for the production of incense stick and the major benefit of this industry is that start-up capital is low with low requirement of machineries. Bamboo dust and residuals of adequate size with the aid of a requisite agent reinforced into acrylic mat which results in value addition to the waste and facilitates a connection between industry units and mat weaving centres. The report of the Export Promotion Council for Handicrafts (EPCH) states that the trade of Indian handicrafts industry during 2015-16 was US\$ 1.9 billion. United States, United Kingdom, Germany, France, Latin America, Italy, Netherlands, Canada and Australia are the major importers of handicrafts from India. Handicrafts worth Rs. 21,457.91 Crores were exported by India in 2015-16 as per the report of the the Export Promotion Council for Handicrafts.

Statement of the Problem

The handicraft industry, despite its cultural and economic significance, faces persistent challenges in achieving sustainable growth due to limited integration with formal financial markets. Artisans often struggle to access adequate capital, affordable credit, and financial resources, which are essential for scaling their businesses and improving their livelihoods. The lack of financial literacy, digital payment adoption, and handmade

financial solutions further exacerbates these challenges. Historically, bamboo was used to meet simple day-to-day requirements like storage, religious ceremonies, building and various household items. But with the development of advanced technology, the utilisation of bamboo has undergone changes overtime (Yunus, 2017).

Kerala's handicraft industry is characterised by strong cultural and ethnic traditions. It is a significant industry for creating employment opportunities in the rural economy of the state. The state is famous for its beautiful cane and bamboo crafts, handloom textiles and coconut shell craft which have great potential to generate employment, entrepreneurship and conserve traditional wisdom. Bamboo is one of the most widespread and widely used natural fibres found in Kerala. It is found abundantly in home and forest lands, with Wayanad being one of the major districts in the production of Bamboo

Artisans in this industry often lack the necessary financial resources, literacy, and access to digital payment platforms, leaving them reliant on informal and often exploitative credit systems, limited market linkages, competition, demand decline and lack of financial support. These barriers hinder their ability to scale operations, innovate, and compete in broader markets. Despite the potential of microfinance, inclusive financial initiatives, and financial literacy training to address these issues, there remains a gap in integrating bamboo craft artisans with formal financial markets.

Review of Literature

- (Arindam, 2010) also is in opinion that the sector of handicraft has potential of economic improvement without any effect on sustainability. He further identified that handicraft will play pivot role in strengthening the cultural identity, heritage preservation which contributes to the overall development of the national economy with that author states that handicraft sector provides opportunities for entrepreneurs, creates jobs for workers, brings foreign currency to the domestic country through promoting exports and creates demand for the artisans.
- (Sanjay Mahapatra, 2011) states that there is need of improvement in the marketing process of the craft of famous craftsmen work. In organized market, craftsmen receive fair remuneration in organised market whereas low wages and poor working conditions are the situations in unorganised market. Government should facilitate and promote the craftsmen to take participation in different mela, craft bazaar, involvement of NGO and Exhibition of Handicraft Products.
- (Blerim, 2012) laid main emphasis on web marketing as it has a tremendous impact on the selling of the handicrafts. The web marketing is one of the new methods to provide update information about the products, which help the

customers. It would be a great help for the development of the successful web marketing programmes to promote their handicrafts through this medium if government helps this industry.

- (Kumar and Rajeev, 2013) said that this the era of e-commerce. Internet plays a crucial role in order to deliver a common platform for all business. It is a cheap and strong medium through which a consumers easily know about any products features, price, availability, accessibility, order the products, paying the prices etc. handicraft industry needs this medium to markets their products which has an effective way through which the small retailers take these benefits after small investment and it covers large proportion of the customers including local, national and international as compared to the other medium of the of advertisement like banner, poster, pump lets, exhibition etc.
- (Yunus, 2017) The handicraft industry plays a crucial role in preserving cultural heritage and providing livelihoods to millions, particularly in rural areas. However, financial constraints remain a significant challenge. Studies indicate that the lack of integration with formal financial systems hampers artisans' ability to scale their businesses. Microfinance has been identified as a critical tool for addressing these challenges, providing artisans with access to affordable credit and enabling them to invest in production and marketing.
- Chaudhury (2019) The socio-economic conditions of the craftswoman and craftsmen have been assessed and their problems have been brought to the fore through primary survey. Handicrafts as a source of revenue for the people of Bolpur has been examined by applying few quantitative techniques of analysis. The author mentioned that the major problems associated with handicrafts in Shantiniketan are huge. The craftswomen don't want their children to come into this industry as they fear they will also get exploited like them, and they want their children to do higher education and become involved in the service sector The craftswomen believe that the business has experienced a boom over the years and they have been able to increase their business and opened up new chains.
- (Oza, 2019) study marketing importance and concepts in handicraft industry. Also consists a SWOT analysis of handicraft industry. The handicraft industry involves high employment of women artisans. Some of marketing problems faced by artisans are like, under developed infrastructure, small scale production. The paper suggests to create awareness amongst the customers by adopting proper marketing mix, It also recommends to organise marketing networks through supply chain management.

Significance of the Study

Bamboo craft has long been an essential part of Kerala's cultural and everyday life. The state has emerged as a hub for hand-crafted bamboo souvenirs and artifacts, opening up new avenues for creativity and innovation. Kerala's bamboo craftsmanship blends traditional techniques with contemporary design trends, making it popular not only across India but also internationally. For the artisans of this region, bamboo is more than a medium for artistic expression, it is also a sustainable source of livelihood. While Wayanad is particularly known for this craft, many other rural areas and towns in Kerala are equally active in its practice.

Financial empowerment for artisans in the Handicraft Industry is significant as it explores ways to enhance economic independence for artisans, particularly women in rural areas, by providing access to financial resources. This empowerment can drive the growth of the handicraft industry, enabling artisans to scale their businesses, improve production, and expand market reach. By integrating artisans into formal financial markets through tailored products like microloans, the study addresses the challenges of financial inclusion and contributes to sustainable development, poverty alleviation, limited access to funds, lack of infrastructure, and market barriers and gender equality. Financial support helps preserve cultural heritage by ensuring the long-term viability of traditional crafts while empowering marginalized groups. By focusing on the role of financial resources such as loans, investments, and microfinancing, the title suggests a pathway for artisans to access the capital needed for innovation, expansion, and improved production. The title "Financial Empowerment for artisans: Leveraging Financial markets for handicraft industry growth" emphasizes the importance of integrating the artisans into formal financial systems, they can gain better control over production, improve product quality, expand market reach, and increase income stability.

Objectives

1. To examine the awareness of handicraft artisans on marketing strategies financial empowerment of handicraft industry
2. To study marketing opportunities for the empowerment of artisans in handicraft Industry
3. To identify marketing challenges faced by handicraft artisans.

Research Gap

The existing literature discusses the current scenario, growth prospects, and challenges of the Bamboo handicraft industry especially India. Various surveys have been conducted in this region which focus on the rural livelihoods, livelihood diversification

of the inhabitants as well as the problems faced by handicraft sellers and craftsmen. The integration of artisans into formal financial systems such as access to institutional credit, microfinance, insurance, digital payment platforms and investment opportunities remains underexplored in the context of Kerala. The research highlights the gap between traditional skills and modern financial opportunities, ultimately contributing to the inclusive and sustainable growth of the handicraft industry. However, there is a lack of comprehensive studies specifically focusing on financial Empowerment and leveraging financial market for handicraft industry growth in Kerala.

Methodology

The study is both analytical and descriptive in nature. Both primary and secondary data are used in the study. For the purpose of the study, Primary data was collected from a sample of 100 respondents from bamboo Craft industry in Kerala with the help of a structured questionnaire. Snowball sampling technique was employed for selecting the sample respondents. Information from various magazines, journals, reports and newspaper articles constitutes the secondary data. The data collected was examined using basic statistical methods, including percentage analysis and ranking techniques.

Analysis and Interpretation

Drawing from the findings of surveys distributed through Structured Questionnaire, 100 responses were collected. The collected data is analysed with the help simple statistical tools.

Gender Wise Classification

Table 1
Gender

Gender	Number of Respondent	Percentage
Male	62	62%
Female	38	38%
Total	100	100

Source: Primary Data

Interpretation

The above Table 1, it can be interpreted that regarding gender wise classification, 62 (62%) of the respondents are from Male artisans, followed by 38 (38%) from Female handicraft artisans.

Experience of Bamboo artisans in handicraft Industry

Table 2
Experience of Artisans

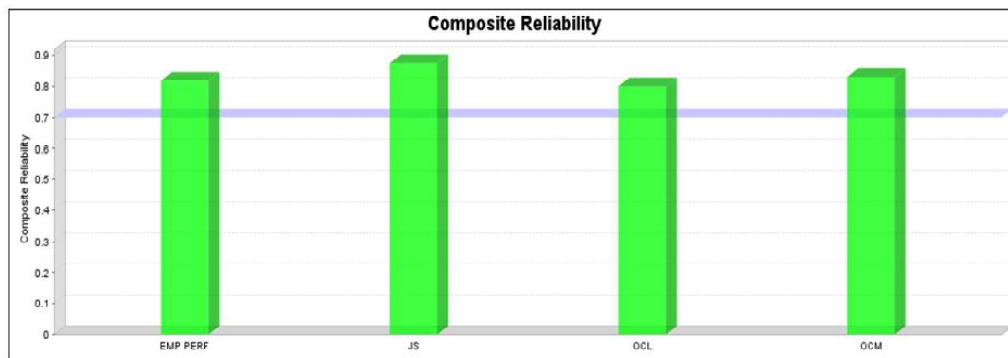
Experience	Number of Respondent	Percentage
0-2 Years	25	25%
2-5 Years	41	15%
5-10 Years	15	41%
Above 10 years	19	19%
Total	100	100

Source: Primary Data

The Table 2 indicates that the majority of respondents (41%) have 5-10 years of experience. This is followed by 25% with 0-2 years of experience, 19% over 10 years of experience and 15% with 2-5 years of experience

Primary occupation of respondents

Table 2
Occupation of respondent



Analysis of the Table 2, shows that, Handicraft artisans was the traditional occupation of the majority of the respondent's household. Of the 100 total respondents, 44 (44%) belongs to the artisans in handicraft business, 26 (26%) belongs to business, 20 (20%) related to agriculture and followed by others 10 (10%). From this, it can be observed that Handicraft Industry business is still an inherited one and new entrance to the sector is very few. The handicraft sector continues to thrive on human creativity and

craftsmanship, emphasizing its critical role in generating employment and preserving cultural heritage

Awareness of Schemes

Table 3
Awareness of schemes

Awareness of schemes	Number of Respondent	Percentage
YES	70	70%
NO	30	30%
Total	100	100

Source: Primary Data

Interpretation

From Table 3, it was found that majority of the handicraft artisans were having full awareness regarding the various government schemes for the growth of artisans engaged in handicraft industry (70%), and 30% artisans opined that no awareness regarding government schemes for the promotion and growth of handicraft industry.

Table 4
Awareness of Marketing strategies

Marketing Strategies	Fully Aware	%	Partially Aware	%	Fully unaware	%
Digital platforms	45	45	29	29	26	26
Marketing campaigns	38	38	40	40	22	22
Exhibitions	62	62	31	31	7	7
Craft tutorials	40	40	33	33	27	27
Fairs and local markets	24	38	20	40	56	22

Source: Primary Data

The overall data revealed from the Table 4, that the awareness of digital platforms among handicraft artisans 45% are Fully aware on digital platforms and 29% are partially aware about digital platforms. 26% are fully unaware. It also disclosed that the awareness on Marketing campaigns (80%), Craft tutorials (24%), followed by partially aware

(40) on Marketing campaigns and the least partially aware (20%) on Fairs and local markets. Most of them had no awareness (7%) on Exhibitions. Initiatives focused on digital literacy, training, and platform accessibility are essential to equip artisans with the skills needed to navigate the digital space, ultimately enhancing their reach, income, and the preservation of traditional crafts.

Adequate Financial support for Handicraft Industry

Table 5
Financial support

Marketing Strategies	Fully Aware	%	Partially Aware	%	Fully unaware	%
Digital platforms	45	45	29	29	26	26
Marketing campaigns	38	38	40	40	22	22
Exhibitions	62	62	31	31	7	7
Craft tutorials	40	40	33	33	27	27
Fairs and local markets	24	38	20	40	56	22

Source: Primary Data

Interpretation

Grants and subsidies provided to bamboo craft artisans have significantly improved their capacity to produce marketable products. A large majority of respondents (80%) either agreed or strongly agreed that these financial supports have enhanced their ability to create products suited for the market. This indicates a positive perception of the effectiveness of the products. The support on Flexible repayment options given to handicraft workers in marketing bamboo products has effectively expanded the reach of these products in existing markets. Responses are more evenly distributed across the scale. However, the highest percentage of respondents (25%) selected “Neutral.” This suggests a mixed perception regarding the effectiveness of the Flexible repayment options initiatives in expanding the reach of bamboo products in existing markets. The Financial literacy programs (27%) focus on developing both bamboo products and the skills of product makers is essential for expanding market reach and creating new market opportunities in rural areas. This indicates a relatively positive perception of the importance of a strategic focus on both product development and skills enhancement for expanding market reach and creating new opportunities in rural areas. The Market linkages programs offered to handicraft artisans effectively equip them with the necessary market linkages to produce high-quality traditional products: The highest percentage of

respondents (28%) strongly agree that the Market linkage programs effectively equip handicraft workers with the necessary financial independence and stability. Overall, a majority (53%) either agree or strongly agree with this statement, indicating a positive perception of the effectiveness of these programs. The initiatives aimed at supporting handicraft in marketing their products have contributed significantly to their business growth. A significant portion of respondents (50%) either agreed or strongly agreed that the initiatives aimed at supporting in Government Schemes on marketing have contributed significantly to their business. This suggests a positive perception of the impact of support initiatives on business growth and market reach. makers are essential for expanding market reach and creating new market opportunities in rural areas.

Marketing challenges

To identify the marketing challenges faced by handicraft products, six key factors were presented to the respondents, who were asked to rank them in order of priority from 1 to 6. Each rank was then assigned a corresponding weight for data analysis.

Rank	1	2	3	4	5	6
Weight	6	5	4	3	2	1

Table 6
Marketing Challenges

Challenges	Rank-1 (6)	Rank-2 (5)	Rank-3 (4)	Rank-4 (3)	Rank-5 (2)	Rank-6 (1)	Total	Weighted Score	Rank
Lack of access to loans or credit	50	14	15	10	6	5	100	477	1
High-interest rates on loans	44	16	13	10	12	5	100	455	2
Difficulty in saving or budgeting	40	20	15	12	10	3	100	379	6
Insufficient income from sales	28	22	16	13	10	11	100	412	4
Rising costs of raw materials	38	19	17	11	9	6	100	448	3
Lack of market access or demand	30	25	15	12	9	9	100	437	5

Source: Primary Data

Interpretation

The Table indicates that ‘Lack of access to loans or credit’ is ranked as the most significant challenge (Rank 1), followed by ‘High-interest rates on loans’ (Rank2, and ‘Rising costs of raw materials’ (Rank-3). Other challenges include ‘Insufficient income from sales’ (Rank 4), ‘Lack of market access’ (Rank-5) and ‘Difficulty in saving (Rank 6). This ranking suggests that financial constraints, particularly limited access to credit, are perceived as the most critical marketing challenges faced by artisans in the handicraft industry

Findings

The study revealed several key findings regarding the awareness of artisans on marketing strategies, marketing opportunities, and financial challenges in the handicraft industry. It was observed that many artisans lack awareness of modern marketing strategies such as Digital platforms, Marketing campaigns, Craft tutorials, Fairs and local markets and Exhibitions. Most rely on traditional methods like word-of-mouth or middlemen, which significantly reduce their profitability. In addition, limited access to technology and inadequate training programs further hinders their ability to leverage current marketing opportunities. Artisans are generally unfamiliar with the potential of online platforms. There is a clear need for awareness and capacity building on how to effectively use e-commerce for expanding market reach. The artisans show minimal familiarity with social media and user-friendly digital platforms, restricting their ability to engage with modern buyers or promote their products online. The existing infrastructure for production, packaging, and marketing are outdated and insufficient.

The study also highlighted various marketing challenges faced by artisans Lack of access to loans or credit, emerges as the most critical barrier, indicating that artisans struggle to secure necessary funding for production and business growth. High-interest rates on loans, which discourages artisans from borrowing when credit is available. Difficulty in saving or budgeting, Insufficient income from sales, Rising costs of raw materials, Lack of market access or demand. To address these issues, the study recommends implementing skill development programs focused on digital marketing, branding, and financial literacy. Providing subsidized credit schemes and improving infrastructure would enable artisans to enhance their production and marketing capabilities. Establishing direct market linkages and offering policy support through subsidies and tax incentives can empower artisans and promote sustainable growth in the handicraft industry.

Recommendations

In light of the results from research carried out, the following recommendations can be adopted for the growth of Handicraft Industry

1. Conduct workshops and training sessions on branding, pricing, and digital marketing handmade specifically for artisans.
2. Partner with NGOs or local government bodies to educate artisans about e-commerce platforms and how to use them effectively.
3. Organizing marketing network of Handicraft products.
4. Encourage artisans to form local artisan groups or associations that can collectively market their products, reduce individual marketing costs and increase visibility.
5. Development and modernisation of existing infrastructure.
6. Introduce artisans to user-friendly digital platforms like social media and e-commerce websites.
7. Ensure easier access to microcredit or small loans with minimal interest rates to support artisans.
8. Development of Museums and Development Centres to expand local crafts with an eye on preserving and promoting them.
9. Government should initiate steps for promoting Foreign Direct Investment in Handicraft Sector.
10. Encourage the formation of artisan cooperatives to pool resources, share costs, and collectively market their products for better profitability. Introduce supportive schemes and financial assistance for handicraft sector and artisan development.
11. The government should establish adequate projects for the supply raw materials to artisans.
12. Sufficient warehouse facilities need to be established for artisans.
13. Reduce dependency on middlemen by connecting artisans directly with buyers through local fairs, exhibitions, and online marketplaces.
14. Design training programs tailored to the needs of different artisan groups based on their craft and region.
15. Improve local infrastructure, including access to transportation, storage facilities, and reliable internet connectivity, to support artisans in producing and marketing their products.

Conclusion

Handicraft is considered as the signature of creativity and the unique domain of a country in the era of globalization. The handicraft sector involves the production of handcrafted products employing traditional knowledge, basic equipment, and locally available raw materials. This research places a focus on efficient marketing strategies in economically empowering the sector as well as its artisans. Though most artisans showcase exceptional craftsmanship, a lack of basic knowledge in contemporary marketing techniques discourages them from tapping major markets. The research identifies a number of potential marketing channels significantly raise artisan's sales. Some great challenges for artisans in the face of limited digital skills, inadequate financial means and competition from mass produced items. By overcoming these challenges through specific skill development initiatives, increased market access through specific development initiatives, increased market access, and financial support the handicraft industry can be made stronger, ensuring sustainable and improved livelihoods.

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Evaluation of the Women Entrepreneurship Mission of the Government of Kerala in Alappuzha District: Empowering Women Entrepreneurs and Driving Inclusive Growth

Discipline: Commerce

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Abstract

The Women Entrepreneurship Mission shortly referred to as 'WEMission' is a programme organized by the Government of Kerala in order to support and elevate the economic progress of women through entrepreneurship initiatives. The mission has a prominent role in the district of Alappuzha for supporting women to become self-reliant by offering appropriate training, financial assistance, mentorship, and market backings. The mission aims at the enhancement of the competency of women, fostering innovation, and strengthening their aptitude by paying special attention to rural and semi-urban regions of the state. In its initiatives, the mission joins hands with 'Kudumbashree' and other allied organizations. The WE-mission has extended valuable support for the growth of large number of businesses ventures by women across various domains such as coir, handicrafts, food processing, and tourism. The study throws light on the impact of WE-Mission in the Alappuzha district of the state of Kerala by assessing its effectiveness in empowering women entrepreneurs and its role in inclusive economic development. It underlines the merits, hindrances and scope for improvements. The results unveil that the WE-Mission facilitates improvements in economic and social conditions as well as creates a more inclusive and a conducive environment for entrepreneurship.

Key Words: Women Entrepreneurship, WE-Mission, Inclusive Growth, Self-employment Skill Development, Sustainable Growth, Gender Equality.

Introduction

Women entrepreneurs in the district of Alappuzha in the state of Kerala are making remarkable advancements particularly in the fields of food processing, tourism and handicrafts. There are lot of Government sponsored programmes and schemes working in this direction for the empowerment of women. The Kudumbashree mission is a prominent organization in this context which provides various supports and programmes for fostering the economic and social development of women. Several government

programs and NGOs also contribute by offering financial help, training, and infrastructure to women who start their own businesses. As time passed, the way we think about entrepreneurship has changed, and now it's viewed as a part of leadership, as explained by Schumpeter. In this decade, women entrepreneurship has picked up speed, giving women the chance to become self-dependent and self-reliant. There are five key aspects of women's empowerment: feeling confident in one self, having the freedom to choose, accessing opportunities and resources, managing life both inside and outside the home, and the ability to bring about changes that create a more equal society, as described by Killby (1971). Ways to support women's empowerment include learning, gaining guidance, raising awareness, building self-confidence, improving access to services, and working to end gender-based segregation and inequality. In India, after independence, women's freedom wasn't highly valued, and women's entrepreneurship was largely limited to the agro-food sector, including spice processing, juice making, incense stick production, and pickle making. However, in recent years, women have started to expand into other fields like engineering and medicine. Entrepreneurship has become a significant factor in women's empowerment. The role of women in business has transformed society as a whole. In Kerala, women have a strong influence on the state's social and economic development. According to Desai (2003), a woman entrepreneur is expected to take risks, make decisions, manage responsibilities, and come up with new ideas. Because of urbanization, development, and independence, women in Kerala, who have a higher literacy rate than women in other parts of the country, are moving towards empowerment and making money from their ventures. This puts them in a unique position, as they have responsibilities both as members of their households and as parents, while also competing with men in business and industry. In this context, Ganeshan S (2003) has suggested identifying the key technologies that can allow a woman to be a successful entrepreneur without affecting her personal goals.

Objectives of the Study

- To assess how much the WE-Mission has improved the entrepreneurial skills and ability of women beneficiaries in Alappuzha district to generate income.

Hypothesis of the Study

- **H0 (Null Hypothesis):** The WE-Mission has not made a significant improvement in the entrepreneurial skills and ability to earn income for women beneficiaries in Alappuzha district.
- **H1 (Alternative Hypothesis):** The WE-Mission has significantly enhanced the entrepreneurial competency and aptitude to generate income for women beneficiaries in district of Alappuzha.

Research Methodology

The study has a descriptive framework. 38 women entrepreneurs in the Alappuzha district of Kerala were randomly selected for gathering data for the study. Google Forms were issued to the respondents to collect the relevant information. The study was performed between June and July 2025.

Statement of the Problem

The Women Entrepreneurship Mission in Alappuzha aims at the capacity building of women entrepreneurs and fostering comprehensive development. It emphasizes the essentiality to confront the systemic weaknesses that obstruct women from actively undertaking entrepreneurship.

These weaknesses include lack of funds, lack of competency and social issues that deter women from undertaking business projects.

Relevance of the Study

The evaluation of the WE-Mission programmes in Alappuzha is considered significant as it examines how the beneficiary women entrepreneurs contribute to overall growth in the specific region. It observes the effect of women entrepreneurship on the home economy and social environment. The outcome of this study can give useful inputs for policy formulation and implementation of similar projects in other regions.

Review of Literature

- “Women empowerment includes giving equal opportunities in all areas of life” (Committee, 2011). In reality, women face many issues, such as domestic violence, sexual harassment, trafficking, and rape (Sharma, 2015).
- Women empowerment means making women strong and capable of making their own decisions. Women have faced a lot of challenges throughout history at the hands of men. In earlier times, they were treated as almost invisible, with all the rights belonging to men, even something as basic as the right to vote. As time passed, women started to realize their strength. This led to the beginning of a movement for women empowerment. (Usha Devi & Balakrishnan)
- When women were not allowed to make their own decisions, women empowerment was like a fresh breeze. It helped them understand their rights and how they could create their own space in society instead of relying on men. It also showed that things shouldn't depend on someone's gender to work out. However, there is still a long way to go when it comes to understanding why women empowerment is so important. (Combaz, 2014)

Relevance to Alappuzha District

- **Economic Development:** By encouraging women to start their own businesses, these initiatives help spread out the economy, create more jobs, and boost the overall growth of Alappuzha.
- **Poverty Alleviation:** Offering long-term job opportunities gives women and their families a chance to escape poverty and better their quality of life.
- **Addressing Gender Inequality:** Supporting women in business helps break down old ideas about gender roles and biases, leading to a fairer and more equal society.
- **Community Development:** When women run successful businesses, it brings benefits to the whole community, such as more employment, higher incomes, and better social outcomes like education, health, and family welfare.
- **Employing Domestic Resources:** These efforts can assist women to develop competencies in regional industries and resources, like coir, cashew processing, handicrafts, and eco-friendly tourism, which are popular in Alappuzha.

Women Entrepreneurship in Alappuzha

- **Food Industry:** Rural women in the district are largely involved in processing and packaging of fish, dry fish, pickles, and other seafood items. They are also engaged in the manufacturing of creating food items like jackfruit chips and other snacks from jackfruit.
- **Handloom and Handicraft Items:** Alappuzha is popular in the manufacturing of coir products, and women actively participate in the various stages of coir production, starting from the processing of raw materials to finished goods. Some women entrepreneurs manufacture innovative products from recycled materials, such as bags and other items.
- **Tourism Ventures:** Alappuzha is a famous tourist spot in the global tourism map and women are taking advantage of the scope of the business opportunities in this region. Women are largely involved in the tourism sector, running hotels, homestays, and houseboat ventures.
- **Other Segments:** Women are also concentrating on other areas of business such as digital marketing, boutiques, beauty parlors and homemade bakery products.

Government and NGO Support

- **Kudumbashree:** The Kudumbashree mission network extends various kinds of assistance to women by constituting self-help groups and undertake different

economic activities. It provides training, financial support and marketing backups to women entrepreneurs.

- **Kerala State Industrial Development Corporation (KSIDC):** KSIDC offers technical support and financial assistance to women entrepreneurs through the Women Entrepreneurship Mission (WE-Mission).
- **Kerala Startup Mission (KSUM):** KSUM formulates soft loans to women startups for working capital and project execution.
- **Non-Government Organizations (NGOs):** Several NGOs in Alappuzha organizes various programmes for fostering entrepreneurship. ‘Samagra Vikas Social Service Society’ and ‘Samabhavana’ are few examples. Alappuzha, a fascinating tourist place in Kerala, is now witnessing an upsurge in the volume of women-led business enterprises, particularly in the tourism sector. Women are now occupying prominent space in business by starting ventures in food processing, hospitality, beauty salons, handicrafts and many more fields.
- **Progress in the Tourism Segment:** Women are now assuming prominent space in the responsible tourism efforts of the Alappuzha district, which contributes largely to the local economy and generating high employment opportunities. Several restaurants in the sector are now owned and operated by women. Most of them are famous for authentic seafood, and other recipes.
- **Innovative Businesses:** There are many women entrepreneurs in the district who are well known for their innovative ventures in the fisheries sector. Some of them concentrate in ornamental fish farming and fish manure-based fertilizer production.
- **Support Systems:** The Kerala Startup Mission (KSUM) provides soft loans to the extent of ¹ 15 lakhs around \$18,000 USD as working capital for startup projects of women entrepreneurs. Numerous NGOs in Alappuzha have distinct schemes in support of women entrepreneurs. These schemes cover education, skill development, and financial independence of the women entrepreneurs. The Integrated Development Society (IDS) Alappuzha is a multidisciplinary NGO based in Alappuzha that works for the all-round development of marginalized communities. The Women Empowerment through Livelihood and Entrepreneurship (WeLive) programme of the IDS deliver support services such as market studies, marketing strategies, and credit linkage facilitation for women entrepreneurs.

Common Objectives of the WE Mission

- **Fostering Livelihoods:** One of the major objectives is to facilitate sustainable income opportunities for women, particularly in rural and underprivileged areas.
- **Improving Entrepreneurial Competencies:** The programmes are developed to support women to enhance their competencies in areas like idea generation planning, manufacturing, financial management and marketing.
- **Supporting Micro Enterprises:** The mission extends creative support for establishment and the development of small businesses, both at the individual and group level, across different business domains.
- **Empowering Women:** By helping women gain economic independence, the mission aims to increase their confidence, improve their ability to make decisions, and raise their social status.
- **Improving Access to Resources:** The initiative works to help women entrepreneurs get access to important resources such as loans, market access, raw materials, and technology.
- **Building Social Capital:** The mission encourages the formation and strengthening of self-help groups and community networks to build unity and support for collective business efforts.

Results and Discussion

2.Age:

35 responses

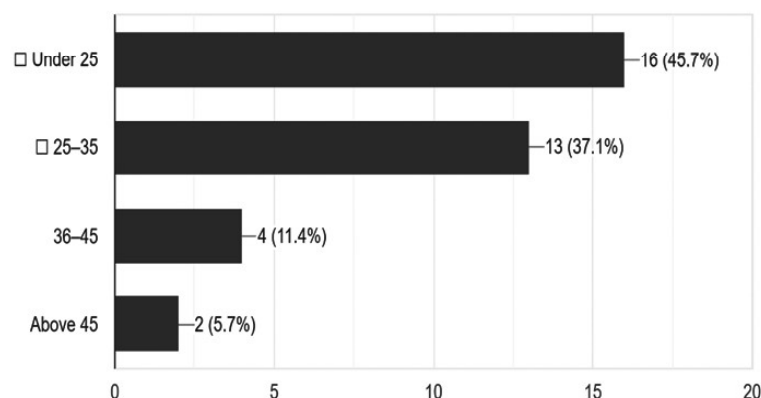


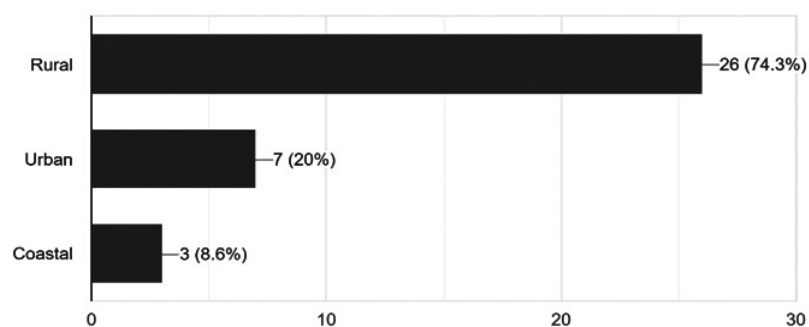
Table: Age-Wise Distribution of Respondents (WE Mission - Alappuzha)

Sl. No	Age Group	Frequency (O)	Percentage (%)	Expected Frequency(E)	(O-E) ² /E
1	Under25	16	45.7%	8.75	6.02
2	25-35	13	37.1%	8.75	2.06
3	36-45	4	11.4%	8.75	2.58
4	Above45	2	5.7%	8.75	5.20
	Total	35	100		15.86

Measure	Value
Mean	1.77
Median	2(AgeGroup:25-35)
Mode	1(AgeGroup:Under25)
Standard Deviation	0.93
Chi-square value	15.86
Degrees of freedom	3
Chi-squarep - value	<0.01(Significant)
Conclusion	Age Distribution is not Uniform

5. Residential Area

35 responses



Chi-Square Test

RESIDENTIAL AREA	OBSERVED
RURAL	26
URBAN	7
COASTAL	3
TOTAL	36

Null Hypothesis (H₀): Women are just as likely to take part from each of the three different areas-rural, urban, and coastal.

Expected Frequency: There are a total of 36 responses and 3 categories, so the expected number for each category is 36 divided by 3, which equals 12.

Table Observed Vs Expected

Residential Area	Observed(O)	Expected (E)	$(O-E)^2 / E$
Rural	26	12	$(26-12)^2/12= 16.33$
Urban	7	12	$(7-12)^2/12=2.08$
Coastal	3	12	$(3-12)^2/12=6.75$
Total χ^2			25.16

Chi-Square Value (χ^2) = 25.16

Degrees of Freedom (df) = number of categories - 1 = 3 - 1 = 2

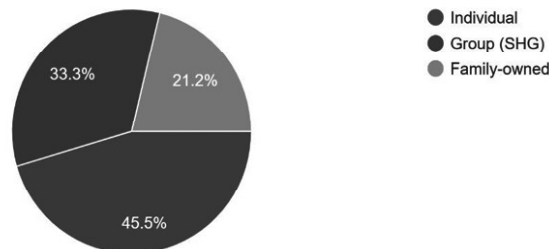
Critical value at 5% level (from chi-square table) H' 5.99

Since 25.16 is greater than 5.99, we reject the null hypothesis.

There is a significant difference in the participation of women from different areas. Most participation comes from rural areas, much more than expected.

8. Business ownership:

33 responses



From the pie chart:

Individual: 45.5% of 33 respondents equals 15

Group (SHG): 33.3% of 33 respondents equals 11

Family-owned: 21.2% of 33 respondents equals 7

FREQUENCY

Individual=15 Group=11 Family=7

Business ownership	Code(x)	Frequency(f)
Individual	1	15
Group (SHG)	2	11
Family-owned	3	7

Mean:

$$\text{Mean (x)} = \Sigma(fx) / \Sigma f$$

$$\Sigma fx / \Sigma f$$

$$(15 + 22 + 21) / 33 = 1.76$$

$$\text{Mean} = 1.76$$

Median:

Business Ownership	Frequency (f)	Cumulative Frequency (cf)
Individual	15	15
Group	11	26
Family-owned	7	33

N=33, the median position=33/2=16.5, which is in the Group (SHG). So, Median =2

MODE:

The most frequent category is individual (15 responses), so Mode=1 (Individual)

Standard Deviation:

$$\sigma = \sqrt{[\sum f(x-\bar{x})^2/N]} \text{ Mean} = 1.76$$

X	f	x-Mean	(x-Mean) ²	f × (x-Mean) ²
1	15	-0.76	0.5776	8.664
2	11	0.24	0.0576	0.6336
3	7	1.24	1.5376	10.7632

$$SD = \sqrt{8.664 + 0.6336 + 10.7632/33}$$

$$= \sqrt{20.0608/33}$$

$$= \sqrt{0.608}$$

$$= 0.78$$

$$\text{Mean} = 1.76$$

$$\text{Median} = 2$$

$$\text{Mode} = 1$$

$$SD = 0.78$$

Conclusion

The WE-MISSION in Alappuzha, backed by the Kerala government and run by KSIDC, is an important effort. It helps women entrepreneurs and helps the local economy grow. This program offers financial help through loans and grants, enabling women to grow their businesses and contribute more to the economy. Groups like Kudumbashree play a big role in bringing women together and offering support at the community level. This helps the mission make a bigger impact in reducing poverty and empowering women. However, there are still issues with people knowing about these programs and accessing them easily. To make the mission more effective, there needs to be more efforts to reach out, make the processes simpler, and offer mentorship. The WE-MISSION can keep supporting women entrepreneurs in Alappuzha, helping to make the economy stronger and create a fairer society.

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Analysis of the Effectiveness of Training Programmes Conducted by the Kerala Institute of Entrepreneurship Development (KIED)

Discipline: Commerce

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Abstract

The Kerala Institute of Entrepreneurship Development (KIED) conducts various training programmes in order to foster entrepreneurship in the state. These programmes aim at capacity building, enhancement of awareness, and providing assistance at different phases of the enterprise development. KIED also offers different business development training programmes intended to develop entrepreneurship and enrich the competencies of small business enterprises and start-ups. These programmes embrace certain key aspects such as identification of feasible business ideas, formulation of business plans, gathering of essential resources, and managing core business functions. KIED is a self-directed state-level organization under the Department of Industries and Commerce, Government of Kerala, and is dedicated to extend the necessary services for the development of entrepreneurship through its several schemes.

Keywords: Skill Development, Entrepreneurship Development, Training Programs, Job Creation.

Introduction

KIED was established as a distinct government organization in Kerala on November 9, 1994, to promote entrepreneurship among the youth in the state by offering adequate training in human resource development, capacity building, and leadership. Initially, the institute was started at Thiruvananthapuram, but later shifted to Kochi, which is considered as the fast-growing industrial zone in Kerala. The current location is adjacent to several major companies and economic organizations. Promoting entrepreneurship has become a prominent approach in the highly dynamic economy of the modern world to facilitate sustainable development and employment generation. KIED has been working hard to chalk out and organize training programmes that help people to acquire the essential competencies and expertise to set up their own business ventures. It is imperative to examine the effectiveness of these programs because they

directly influence the people who participate in the economic activities. This study reviews the effectiveness of the training initiatives of KIED by evaluating the skills acquired by the participants, changes in their attitude and the ultimate knowledge gained after the training. The outcomes of this study would help to figure out the pros of entrepreneurship training and contribute valuable inputs for rendering adequate modifications in prospective training programmes of the KIED.

Statement of the Problem

The study is considered imperative for evaluating the effectiveness of the training programs conducted by the Kerala Institute of Entrepreneurship Development (KIED). Despite the fact KIED has largely contributed for the development of entrepreneurship in Kerala, a comprehensive review of their training programs is not performed so far. However, this study basically focuses on understanding how the training has improved the entrepreneurial abilities of the participants and how it helped them to grow their business. The results of this study might help in establishing constructive programs and effective utilization of resources.

Objectives of the Study

- To examine the effectiveness of the training programmes offered by KIED in developing entrepreneurial attitudes.

Hypothesis of the Study

- **Null Hypothesis (H_0):** KIED's training programs do not have a significant effect on developing entrepreneurial mindsets in participants.
- **Alternative Hypothesis (H_1):** KIED's training programs do have a significant effect on developing entrepreneurial mindsets in participants.

Methodology of the Study

The current study is descriptive in nature, and the data was collected from 32 samples that were randomly selected from young entrepreneurs in Trivandrum District, Kerala, India. The primary data was gathered by the young entrepreneurs themselves and was systematically compiled using Google Forms. A convenient sampling method was used to collect the information. The study was conducted between June and July 2025.

Review of Literature

- Bose, V. (2012). An Analytical Study of the Impact of Women Entrepreneurship Development Measures Promoted by the Government and Financial Institutions in Kerala. Ph.D. theses, M.G. University, Kerala.

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KIED's Business Development Training

KIED provides different types of training programmes designed in order to support entrepreneurs and formulate effective business development frameworks. These programmes are devised to address various needs and are focused on assisting individuals and groups to strengthen their capabilities to grow their business.

Skill Development Programmes

- **Common Programmes:** KIED delivers skill-based training to entrepreneurs belong to various segments and economic sectors.
- **Specialized Programmes:** These programmes aim at tackling specific challenges and explore certain prospects. For example, training for converting plastic waste into useful products.
- **Training for particular Groups:** KIED structures programmes tailored for meet the needs of certain specific groups. For instance, training programmes for tribal women and widows to address their distinct needs.
- **Awareness Programmes:** These programmes assist people in understanding the importance of entrepreneurship and the merits it can generate.
- **Virtual Sessions:** The KIED also conducts online mode of training and webinars on various topics for the entrepreneurs.

Business Development Support

- **Start and Improve Your Business (SIYB) Methodology:** KIED has devised a methodology known as 'Start and Improve Your Business' 'shortly referred to as SIYB'. This methodology aims at assisting people to establish and develop their business projects.
- **Guidance in Devising Business Plans:** Training methodologies are designed to effectively guide the entrepreneurs in framing constructive business plans.

Moreover, adequate supports are given to analyze the viability of business ideas, and examine the pros and cons of different business models.

- **Identification of the Sources of Resources:** KIED assists entrepreneurs in identifying and procuring both financial and non-financial resources essential for their ventures.
- **Incubation Support:** KIED extends essential support for startup projects through incubation services, offering the fundamental assistance during the initial stages of a business.

Programs for Specific Sectors

- **Agro-Business:** KIED conducts specialized training programmes for firms operating in agro-business and food processing, covering different aspects of the agricultural sector.
- **Other Sectors:** KIED also offers programmes for other industries in order to meet their specific needs and requirements.

Other Training Initiatives

Other training programmes of KIED includes induction training for officers of the Industries Department and refresher training to middle-level officers. KIED also conducts internship programmes for students in order to facilitate the dissemination of knowledge on entrepreneurship and business development.

KIED's Commercial Enterprise Improvement Schooling

- **Comprehensive Syllabus:** The initiatives of KIED are developed to reinforce the capabilities of participants with the essential knowledge and competencies to establish and expand their ventures.
- **MSME Centricity:** The business growth Programmes of the KIED concentrates on supporting Micro, Small and Medium Enterprises (MSMEs) in the state by enhancing their overall efficiency.
- **Mentorship and Guidance:** Furthermore, KIED avails mentorship and guidance support for the emerging entrepreneurs from experienced professionals in the field.
- **Various Programme Formats:** KIED delivers training programmes in both general and product - specific fields, facilitating entrepreneurs to select the option suitable for their needs.
- **Start-Up Process Exposure:** The programmes lead and guide participants to the whole start-up process, from idea generation to implementation, facilitating a

detailed understanding of entrepreneurship.

- **Resource Procurement:** Training covers support on methods for establishing new venture, along with knowledge on financial and non-financial assistance available to entrepreneurs.
- **Business Plan Formulation:** Participants are trained to examine the feasibility of business plans set up an appropriate business profile.
- **Educational Approach:** KIED adopts a wide range of techniques, covering lectures, discussions, case studies, and interactions with experts, to convey knowledge and enable advanced learning. In general, the business development programmes of KIED offers a systematic and conducive environment for entrepreneurs to enhance their skills, knowledge, and confidence to successfully establish and develop their ventures.

Special Projects and Flagship Initiatives by KIED

- KIED organized A five-day workshop in November 2023 on aquaculture, ornamental fisheries, and value-added products. It included industrial visits and entrepreneur sessions.
- **Artificial Intelligence Workshop:** It was held in August 2024 on Artificial Intelligence for MSME entrepreneurs.
- **Human Resource Development Training:** In May, 2024, a HRD program was organized which covered topics such as communication, stress management, emotional intelligence, labor laws, staff engagement, and other HR-management themes.
- **Growth Pulse New Entrepreneur Intensive:** It was held in September 2024 for entrepreneurs with less than 5 years of experience. Topics included marketing, finance, GST, operations, sales, and team management.
- **Business Establishment Programmes:** Organized in October 2023 for early-stage entrepreneurs covering digital marketing, financial and working capital management, GST, legalities/IPR, export-import procedures, and operational excellence.
- **Certificate Programme in Entrepreneurship (Online):** In partnership with EDII Ahmedabad, a five-day online certificate course (involving lectures, case studies, assignments) was offered to the entrepreneurs.
- **Yuva Boot Camp:** A youth-focused boot camp was conducted in September, 2022, in Thiruvananthapuram. It was coordinated by student IEDC teams (like

Teresian College) and led by KIED to inculcate entrepreneurial skills among young enthusiasts.

Other Flagship Clusters (Inaugurated in October 2023):

- **KIED launched four flagship programs**
 1. Launch Pad: A 5-day starter program on business model development and foundational steps.
 2. Growth Pulse -Scaled: A scaled-up version for active entrepreneurs.
 3. Tech Horizons: A 3-day immersion into emerging technologies linked with business strategy.
 4. Market Mystery: A 3-day training on consumer behavior, market analysis, and sales techniques.
- **EMPERTEC Inter-phase Workshop (EIW) and Training of Trainers (TOT)**

EIW is a three-phase workshop aimed at building the capabilities of the officers of the Industries Department as mentors in order to effectively train young people by identifying their entrepreneurial skills and inspiring them through a behavioral approach. This training is based on the realization that competent trainers are essential to train and inspire talented youths thereby enhancing entrepreneurship. KIED has taken a constructive step in this context to develop qualified trainers and mentors for training prospective entrepreneurs.

- **SIYB: Setting People for the Task:** The goal of SIYB is to identify the opportunities created by newer economic policies and on the basis of the emerging opportunities and demands, questions, mentors and trainers provide adequate training to budding entrepreneurs on starting new business ventures by identifying the needs and demands of the market.

- **Major Programs**
 - Skill development programme for the tribal women in the district of Kozhikode
 - Specialized entrepreneurship development training programmes for women in all districts
 - Specialized entrepreneurship development training program for widows in all districts
 - Workshop on entrepreneurial competencies for members and coordinators of Entrepreneurship Development Clubs in educational institutions.

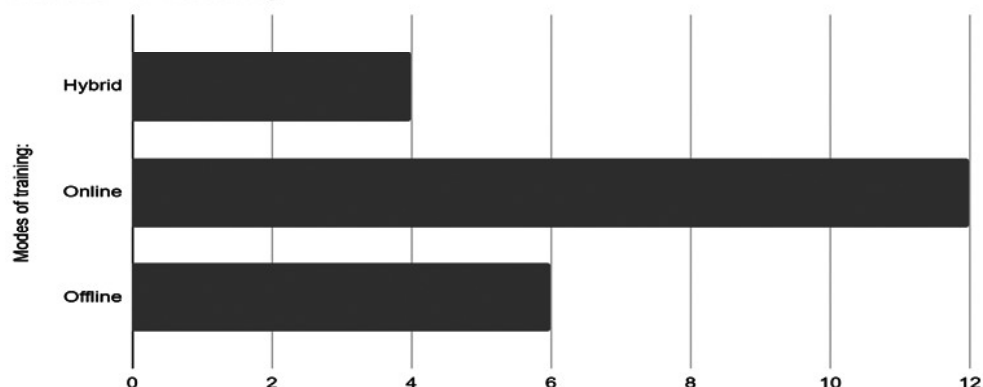
- Refresher training for officers in the industries department
- Job induction training for officers in the industries extension department
- Short-term handloom training for cooperative inspectors
- Handloom training for inspectors
- Anert URJA MITHRA training program for entrepreneurs

Role of KIED

- Impact on entrepreneurial skills: Looking into whether the training provided by KIED has helped participants improve their abilities in areas like creating a business plan, understanding market needs, managing finances, and other related skills.
- Effect on business development: Checking if the training has led to more people starting new businesses, existing businesses growing, and a higher success rate for entrepreneurial efforts.
- Contribution to economic growth: Measuring how much KIED's training programs have helped in creating jobs, increasing income, and improving other economic factors in the state.
- Program delivery and design: Reviewing how effective KIED's training methods, course content, and ways of delivering the training are in helping participants learn and achieve their goals.
- 5.Recommendations for improvement: Finding out which parts of KIED's training programs can be bettered to make them more helpful and successful.

Results and Discussion

Modes of Training



From the Graph:

Online: 54.5% - 12 responses

Offline: 27.3% - 6 responses

Hybrid: 18.2% - 4 responses

Hypothesis:

H0: $p_1 = p_2$ (No difference in preference)

H1: $p_1 > p_2$ (More people prefer Online over Offline)

Pooled Proportion P:

$$P = (x_1 + x_2) / (n_1 + n_2) = (12 + 6) / (22 + 22) = 18 / 44 = 0.409$$

Z-Statistic formula:

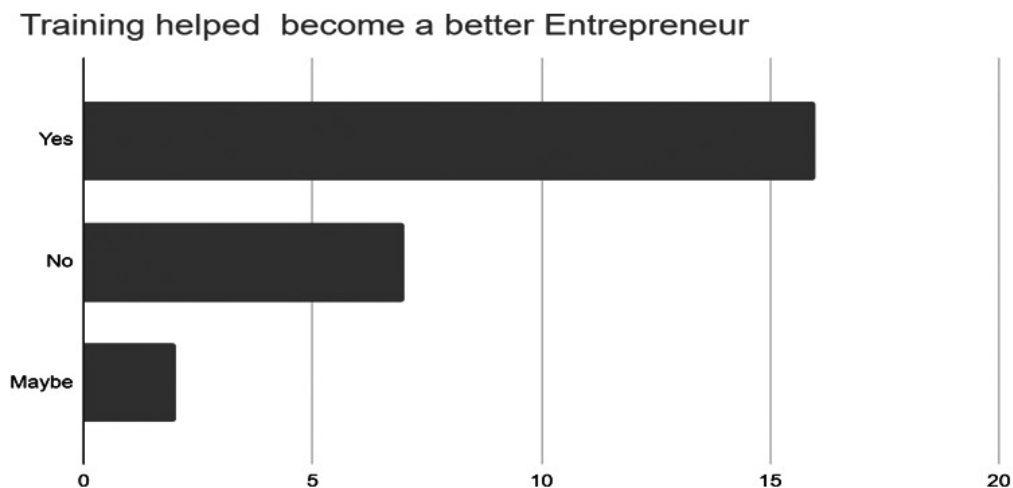
$$= 0.272 / \sqrt{(0.409 \times 0.591 \times 2 / 22)}$$

$$= 0.272 / \sqrt{0.022} = 1.84$$

Z = 1.84

At the 5% significance level (One-tailed), the critical Z value is 1.645.

Since 1.84 is greater than 1.645, rejected the null hypothesis.



Chi-Square Test

Null Hypothesis (H0): The responses are equally likely.

Alternative Hypothesis (H1): The responses are not equally distributed.

Table: 3

Responses	Percentage	Observed Frequency(O)
Yes	69.6%	16
No	13.0%	3
May be	17.4%	4
Total		23

Expected Frequencies

Assuming the responses are equally distributed across the three categories, the expected frequency for each would be 23 divided by 3, which equals approximately 7.67.

The Formula for Chi Square Is

$$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

where:

c = degrees of freedom

O = observed value(s)

E = expected value(s)

Table: 4

Response	O	E	(O-E) ² /E
Yes	16	7.67	(16-7.67) ² /7.67 = 8.99
No	3	7.67	(3-7.67) ² /7.67 = 2.85
May be	4	7.67	(4-7.67) ² /7.67 = 1.75
Total			13.59

Degrees of Freedom (df) equals k minus 1, which is 3 minus 1, resulting in 2. The significance level is set at 0.05, and the critical value from the Chi-square distribution is 5.99.

Conclusion

A study on the effectiveness of training programs by the Kerala Institute of Entrepreneurship Development (KIED) would look at how these programmes influence the fostering of entrepreneurial competencies and the development of an entrepreneurial culture in Kerala. It would examine the content, how the programs are delivered, and the results they produce. This includes evaluating different programs like Entrepreneurship Development Programmes (EDPs), business incubation initiatives, and other skill-building efforts. The study examined whether these programs successfully give participants the knowledge, abilities, and attitude needed to start and run successful businesses. KIED is a prominent institution in the state of Kerala acts as a robust mechanism for inspiring entrepreneurs and developing entrepreneurial competencies among the people. It provides training and support for the existing as well as prospective entrepreneurs. The initiatives of the KIED concentrate on building a healthy and constructive entrepreneurial environment in the state.

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Customer Engagement and Loyalty Towards Banks: An Evaluation of the Dynamics of Customer Relations in the Banking Industry

Discipline: Commerce

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Abstract

Customer relation is a crucial facet in the banking industry which requires persistent and effective efforts to ensure long lasting cooperation and enhance satisfaction. Sturdy customer relation policies and programmes from the side of banks would help in improving customer loyalty. Mass banking and reaching of new customers are the core elements for expansion of the volume of business. However, sustainable growth and development occur only when banks pursue efficient customer loyalty programmes for the retention of existing customers. Exemplary customer relationship initiatives would help to establish ample customer base. Customer engagement is a notion of maintaining warm relations with customers beyond the normal banker customer exchanges. Customer loyalty refers to the assessment of the willingness of customers to do repeated dealings with an organization or brand. The study intends to examine the extent of customer engagement and customer loyalty. It attempts to evaluate the interrelationships between these two facets in a banking scenario.

Keywords: Customer Engagement, Customer Loyalty, Customer Satisfaction, Service Quality, Trust

I. Introduction

The arena of banking industry is exposed to rapid changes. Large varieties of products, channels and choices are available in the banking sector. Besides, the products offered by the banking companies are undifferentiated. There is a remarkable decline in the customer loyalty in the banking sector and the banking firms are striving hard to build good corporate image. Customer loyalty is the outcome of good customer satisfaction, experiences and valuable services. Customer loyalty means the desire and willingness of a customer to choose a particular brand and avail a service offered by a firm. It is basically determined by better customer experiences. Customer engagement is a notion of maintaining warm relations with customers beyond the normal banker

customer exchanges. Morgan (2012) has defined engagement as “the intensity of an individual’s participation and connection with the organization’s offerings and activities initiated by either the customer or the firm”. Daniel Javor (2012) defines customer loyalty as “a relationship between a business and a customer that comes from trust and respect and the value each receives. If both receive maximum value, the relationship will last long term.

II. Research Objectives

The following are the objectives of the study:

1. To measure the level of customer satisfaction.
2. To assess the level of engagement of bank customers.
3. To measure the level of loyalty of bank customers
4. To examine the association between customer engagement and customer loyalty

III. Research Hypotheses

The following are the hypotheses of the study:

1. There is no association between nature of bank having account and level of satisfaction
2. There is no association between gender and level of satisfaction.
3. There is no association between monthly income and level of satisfaction.
4. There is no significant difference between the mean ranks of the opinion of customers as regards factors influencing the customer engagement and loyalty.
5. There is no association between customer engagement and customer loyalty.

IV. Literature Review

- **Heba Sadek and Heba El Mehelmi(2020)** in the study “Customer brand engagement impact on brand satisfaction, loyalty and trust in the online context of Egyptian Banking Sector” identified that online brand experience is significantly influenced by the customer brand engagement. The standard estimate is 0.970 which implies that customers are actively associating with the bank. The study underlines the highest influence of brand experience on brand satisfaction. It indicates that strong brand experience would accelerate satisfaction level of bank customers.
- **Marko Van Deventer and Ephrem Habtemichael Redda(2023)** in the study on “Customer Loyalty and Trust in South African Retail Banking” indicates that

service quality has a role in predicting Generation Y banking customers' loyalty. However, its influence is not statistically significant. On the contrary, the influence of customer satisfaction on loyalty is prominent in the statistical evaluation. Customer satisfaction and commitment have greater impact on customer trust in the context of retail banking. The study emphasizes the pertinent role of service quality and customer satisfaction in enhancing customer loyalty and trust. Besides, customer satisfaction and commitment have a statistically significant positive influence on customer trust in retail banking. The study results indicate that retail banks can enhance customer loyalty and trust by fostering service quality and customer satisfaction and encouraging customer commitment.

- **Vicky Indarto Setyono, Mulyanto Nugroho and Sumiati (2021)** in the study "Customer Engagement, Customer Pride, Customer Value as an Impact through Service Quality" throws light on the necessity of improving customer relationships for fostering customer loyalty. Strengthening customer relationships would help banks to retain existing customers and attract new customers.
- **Defline Putri et al (2024)** in the study "The Relationship of Customer Engagement, Customer Trust, Customer Satisfaction and Customer Loyalty of Mobile Banking Usage in Indonesia" tested the influence of customer engagement, trust, and satisfaction on customer loyalty in mobile banking using structural equation modeling (SEM). The significance of the estimated parameters provides beneficial information about the relationships between latent variables.
- **Supriati Nugroho et al (2024)** in the study "Relationship Between Customer Engagement and Loyalty with Usage of Mobile Banking" examined that the results of testing the customer engagement hypothesis with user mobile banking get a score of ($p = 0.263$) with p values of 0.011 ($p > 0.05$) and t statistics of 2.540 ($p < 1.96$), indicating that there is a significant positive relationship between the customer engagement variable and user mobile banking.
- **Ahmad Saifalddin et al (2018)** in the study "Customer Loyalty: Antecedents, Approaches and Influences of Culture and Religion" found that providers of service should shift their focus from attraction of new customers to retention of existing customers by giving due emphasis to customer loyalty. Scholars usually perceive customer loyalty as attitudinal, behavioral, or composite measurements on the basis of research standpoints and goals.
- **Shafali Shukla (2021)** in the study "Analyzing Customer Engagement through E-CRM: The Role of Relationship Marketing in the Era of Digital Banking in Varanasi Banks" indicates that Relationship marketing improves customer

satisfaction, commitment and trust. The interpersonal relationship between the salesperson and the customer can have a substantial influence on important relational outcomes for the organizations. CRM was considered as a process or strategy for maintaining cordial relationships with customer in an organization.

V. Research Methodology

The study is conducted among the bank customers in Manjeri Municipality. The population of the study is bank customers in Manjeri Municipality of Malappuram District in Kerala. The sample size of the study is fixed as 100. The study adopted Purposive sampling method for selecting customers. Both primary and secondary data are used for the study. Primary data is collected from the customers in Manjeri Municipality and secondary data is collected from books, journals and internet. Questionnaire method is used for collecting data. The statistical tools such as percentage, ranking, scaling etc. are used for data analysis. Graphs are also used for more clarity. Customer engagement and loyalty are measured by using scaling technique. A five-point scale is used for measurement. Analysis is done with SPSS, version 21. Hypotheses are tested by using Chi-square test and Friedman test.

VI. Data Analysis

Table 1
Level of Satisfaction

Level of Satisfaction	Frequency	Percentage	Cumulative Percent	Mean	SD
Highly Dissatisfied	10	9.1	9.1	3.92	1.335
Dissatisfied	11	10.0	19.1		
Neutral	9	8.2	27.3		
Satisfied	28	25.5	52.7		
Highly Satisfied	52	47.3	100.0		
Total	110	100.0	-		

Source: Field Survey

An attempt is made to measure the level of satisfaction of customers. A five-point scale is used for measuring satisfaction. The analysis reveals that 9.1% are highly dissatisfied, 10% are dissatisfied, 8.2% remain neutral, 25.5% are satisfied and 47.3% are highly satisfied. The average value of satisfaction is 3.92 with a standard deviation is 1.335.

Table 2
Analysis of Customer Engagement

Variables	Mean	SD
Feel of Belonging	4.45	0.584
Proud Customer	4.45	0.711
Employees make feel welcome	4.42	0.794
Care about Bank	4.36	0.798
Positive Service Interactions with Bank	4.51	0.701
Feel Happy to Transact	4.56	0.614
Reliable Bank	4.76	0.448
Frequently Banking	4.31	0.821
Average Score	4.47	0.684

Source: Field Survey

An attempt is made to analyze the customer engagement by using 8 variables. The analysis reveals that the average score of customer engagement is 4.47 on a five-point scale and average score of standard deviation is 0.684. Reliable bank is the variable with highest mean score (4.76) and frequently banking with lowest mean score (4.31).

Table 3
Analysis of Customer Loyalty

Variables	Mean	SD
Use more service in future	4.44	0.819
Definitely recommend bank	4.29	0.881
Say positive about bank	4.30	0.873
Encourage relatives and friends to bank	4.25	0.913
Continue using Banking Services	3.37	1.248
Feel of a loyal customer	4.34	0.745
Average Score	4.17	0.913

Source: Field Survey

An attempt is made to analyze the customer loyalty by using 6 variables. The analysis reveals that the average score of customer engagement is 4.17 on a five-point scale and average score of standard deviation is 0.913. Using more services in future is the variable with highest mean score (4.44) and continue using banking services with lowest mean score (3.37).

Table 4
Results of Hypotheses Testing

Research Hypothesis	P Value	Result
There is no association between nature of bank having account and level of satisfaction	0.016	Ho rejected at 5%
There is no association between gender and level of satisfaction.	0.914	Ho accepted at 5%
There is no association between monthly income and level of satisfaction.	0.067	Ho accepted at 5%
There is no significant difference between the mean ranks of the opinion of customers as regards factors influencing the customer engagement and loyalty.	0.000	Ho rejected at 5%
There is no association between customer engagement and customer loyalty.	0.000	Ho rejected at 5%

Source: Compiled from SPSS

I. Results and Discussion

The study revealed that most of the customers are satisfied. About 25.5% are satisfied and 47.3% are highly satisfied. The average score 4.47 indicates that the level of engagement of bank customers in Manjeri Municipality is high. The average score 4.17 indicates that the level of loyalty of bank customers in Manjeri Municipality is high. The chi-square analysis revealed that there is association between customer engagement and customer loyalty. It is found that the most dominant factor which influences customer engagement and loyalty is Satisfaction, with a mean of 2.26. The other factors which influence customer engagement and loyalty are Service Quality (2.33), Trust (2.60) and Commitment (3.46). The least dominant factor is Bank Reputation and Image (4.35).

II. Suggestion

1. The variable, which gets lowest score with respect to measurement of customer's engagement, is frequently banking. Even though the score is 4.31, it is the lowest among the eight variables. The bank authorities may try to find the reason for getting low score and should check whether the customers are frequently using the banking products and services.

2. The only variable, which gets score below 4 on five-point scale with respect to measurement of customer's loyalty, is continuing bank services. The mean score is only 3.37. About 32% customers opine undecided, 13% disagree and 9% strongly disagree. The bank authorities should check the reason for the disagreement with respect to the variable.

III. Conclusion

The study empirically reveals that customer engagement and customer loyalty towards banks in Manjeri Municipality is high. The majority of the customers in Manjeri Municipality are satisfied with the bank. An attempt is also made to check the association between customer engagement and customer loyalty and the analysis reveal that customer engagement and customer loyalty are associated. The chi-square analysis reveals that nature of bank having account and level of satisfaction are associated. However, the gender and level of satisfaction and monthly income and level of satisfaction are not associated. The most dominant factor that affects customer engagement and customer loyalty is found to be satisfaction and the least influencing factor is bank reputation and image. The banks need to satisfy the customers and improve their reputation and image so as to make their customers more engaged and loyal.

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Culinary Tastemakers in the Digital Age: The Influence of Content Creators on Food Tourism and Consumption Patterns

Discipline: Commerce

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Abstract: The food domain in the contemporary scenario has undergone a radical change on account of the upsurge of food bloggers and social media influencers. They are now the key impetus in determining the food choices of people and accelerated the growth of food tourism. Their interventions are aggressively transforming international consumption patterns and setting new dietary trends. The food bloggers and vloggers go far beyond modest food testimonials; they largely shape the regional economies, induce food tourism, and cater to the advancement of an international food culture. This paper explores the prominent role played by the content creators in influencing consumer behaviour, marketing strategies, and the rise of culinary-centred tours.

Keywords: Influencer marketing, tastemakers, food bloggers, food vloggers, food tourism, social media influencers

Introduction

In the present digital scenario, the culinary domain has gone through a drastic change, propelled extensively by the upsurge of food bloggers and social media players. These virtual tastemakers have moved ahead of the ambit of conventional advertising and promotional tools. They are the key impetus in determining the choices of people and reinforce the growth of food tourism. By means of the expert content, appealing descriptions, and direct audience interface, influencers exert substantial influence on consumer preferences. They critically influence the cuisine preferences as well as food destinations of the people. Besides, their campaign for certain dietetic course, sustainable routines, and unique cookeries are aggressively transforming international consumption patterns and intensifying the collective appreciation.

This paper explores the prominent role played by content creators in influencing consumer behaviour, marketing strategies, and the rise of culinary-centred tours. It emphasizes that the impact of food bloggers goes far beyond modest food testimonials; they largely figure regional economies, induce food tourism, and cater to the advancement of an international food culture. These creators engender trends that profoundly resonate with followers, emphasizing a composite and developing affiliation among individual taste and social influence. In due course, this study examines the complex undercurrents between food bloggers and the wider cuisine bio network.

Objectives of the Study

- To analyse the various aspects of attitude of viewers towards food bloggers and influencers
- To examine the relationship between various motivational factors associated with food bloggers and influencers and specific viewer behaviours
- To examine the influence of food bloggers and influencers across different social media platforms on specific viewer behaviours

Review of Literature

- Social media influencers have increasingly asserted their influence in shaping consumer behaviour and attitudes across diverse realms, such as food, travel and lifestyle choices. This growing phenomenon has garnered considerable academic interest; researchers are investigating the impacts and mechanisms of influencer marketing. In the realm of food, influencers assume a pivotal role in endorsing products and moulding perceptions of “good food” (Goodman and Jaworska, 2020).
- Social media influencers have the capacity to sway consumers’ food evaluations and purchasing decisions. Studies indicate that mothers, for instance, are particularly vulnerable to sponsored posts by “mom influencers” (Beuckels and De Jans, 2022).
- The influence of food vloggers on social media users has been documented in various contexts; in Vietnam, for example, the perceived value of advertising content and the credibility of influencers notably shape viewers’ attitudes and intentions towards social commerce (Luong and Ho, 2023).
- Travel bloggers and influencers have increasingly become pivotal in shaping the image of destinations and influencing tourist behaviour. An analysis (specifically) of blogs written by Chinese tourists about New Zealand has shown how user-generated content not only reinforces destination branding but also provides in-depth insights into the perceived image of the destination (Sun et al., 2014).

- There are growing concerns regarding the authenticity of heavily filtered photos found on social media, which can potentially lead to a phenomenon known as value co-destruction in destination marketing (Xie et al., 2023).
- The effectiveness of influencer marketing is often related to parasocial interactions (PSI) and the apparent trustworthiness of the influencer. Studies have shown that both PSI and credibility have a positive effect on purchase intentions; besides, attitude homophily is crucial in the development of PSI (Sokolova and Kefi, 2020).
- The influence of the bloggers goes beyond simple buying decisions—indeed, they can considerably shape attitudes and behaviours through the lifestyles they advocate and promote (Sokolova et al., 2024).
- The stimulus of social media influencers spreads beyond simple commercial settings; they largely cater to health promotion as well. A systematic review has exposed that exchanges with these influencers can generate both positive and negative outcomes for the followers (Chee et al., 2023).
- Vloggers have demonstrated an ability to influence young consumers' purchasing intentions, largely due to factors such as health-related homophily, audience engagement and parasocial relationships (Xu et al., 2021). The rise of influencer marketing has transformed certain consumers into what can be described as human brands.
- Through a persistent cycle of negotiating their identities and adapting to new roles, bloggers often transition from everyday consumers to professional influencers, actively reshaping the blogosphere into a novel organizational field (Erz and Christensen, 2018).
- Research on “Versailles literature,” a trend characterized by humblebragging on Chinese social media platforms, indicates that efforts to project humility while simultaneously showcasing one's achievements may inadvertently undermine the individual's self-image instead of enhancing it (Han et al., 2024).
- As influencer marketing is exposed to continuous modifications, researchers are probing into new dimensions; for instance, the utilization of Instagram fashion influencers to unearth innovative consumer demographics, such as the “Mirror Tourist” (Sánchez-Amboage et al., 2024).

This budding area of research underscores the intricate dynamics between digital media, consumer behaviour and marketing strategies in an era dominated by social media influence. Collectively, these studies reveal the substantial and multifaceted effects of food bloggers and social media influencers on consumer choices (including food

selections), as well as health awareness. Their impact ranges from determining restaurant preferences to advocating for healthier eating habits; however, there are potential drawbacks that necessitate further investigation and thoughtful consideration.

Scope of the Study

The scope of this study examines the influence exerted by food bloggers and social media influencers on customers' perceptions of restaurant selection and food consumption. This investigation will take place in Thrissur District, Kerala, thereby providing localized insights into consumer behaviour within the realm of food blogging. This specific focus is intended to enhance our understanding of regional trends and preferences.

Methodological Approach

The study employs a mixed-methods design, which combines quantitative surveys with qualitative interviews to gather comprehensive data on consumer perceptions and behaviours. Data collection will involve distributing surveys to a representative sample of 102 followers of food vloggers; however, in-depth interviews will be conducted with selected participants (comprising college students) to derive deeper insights into their experiences and motivations. Although the sample size is modest, this approach aims to capture a nuanced understanding of the intersection between food blogging and consumer decision-making.

Data Analysis

1. Demographic characteristic of respondents

Table - 1
Demographic Characteristics

		N	%
Gender	Female	72	70.59
	Male	30	29.41
	Total	102	100
Student Category	U G students	81	79.41
	P G students	21	20.59
	Total	102	100
Monthly Family Income (Rs.)	Less than 20,000	12	11.76
	20,000-40,000	31	30.39
	40,000-60,000	23	22.55
	60,000-80,000	17	16.67
	80,000-100,000	13	12.75
	Above 100,000	6	5.88
	Total	102	100

The demographic characteristics of the study's participants reveal a young, predominantly female audience with a focus on students mostly belonging to middle-income brackets.

2. Attitude of viewers towards food bloggers and influencers

Table-2
Gender and Influence on Food related Behaviours

Hypothesis	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2 tailed)	Accept/Reject
H ₁ -Significant relation between gender and trusting the opinions of food vloggers and food influencers	1025	1490	-.434	.664	Reject
H ₂ - Significant relation between gender and exploring cultures	974	3602	-.845	.398	Reject
H ₃ - Significant relation between gender and inspiration for culinary interests	1013.5	3641.5	-.541	.589	Reject
H ₄ - Significant relation between gender and updated of new food trends	1021	1486	-.460	.646	Reject
H ₅ - Significant relation between gender and dietary choice	1005	3633	-.580	.562	Reject

The table displays the findings of a hypothesis test aimed at investigating the correlation between gender and diverse dimensions of customer attitudes toward food bloggers and influencers. In all five hypotheses, the p-values exceed 0.05; thus, there is no statistically significant connection between gender and the assorted attitudes (such as trusting their opinions, exploring cultures, culinary inspiration, staying updated on food trends and influencing dietary choices). However, the consistent rejection of the hypotheses suggests that the impact of food vloggers and influencers remains comparable for both male and female participants. This indicates a lack of differentiation based on gender, although the nuances of individual preferences may still exist.

3. The relationship between various motivational factors associated with food bloggers and influencers and specific viewer behaviours

H₆- There is a significant relation between the food vloggers' recommendations on choosing a restaurant and the motive to watch food vlogs.

H₇- There is a significant relation between discovering new restaurants and cafes and the motive to watch food vlogs.

H₈- There is a significant relation between choosing destination based on quality and the motive to watch food vlogs.

H₉- There is a significant relation between trustworthiness of food vloggers recommendations and the motive to watch food vlogs.

H₁₀- There is a significant relation between sharing and recommending food vlogs and restaurant experience among others and the motive to watch food vlogs.

Spearman's Correlation Between Motivational Factors and Viewer Behaviour

Table - 3
Recipe Inspiration

Motivational Factors	Visit a restaurant based on a food vlogger's recommendation	Follow food vloggers to discover new restaurants and cafes	Food vlogs provide valuable insights into the dining experience of restaurants	Food vloggers are trustworthy and credible in their restaurant recommendations	Recommend and share the food vlogs and restaurant experiences with others
Recipe Inspiration	0.219*	0.141	0.203*	0.317**	0.352**
Sig. (2-tailed)	0.027	0.160	0.042	0.001	0.000
N	102	102	102	102	102

Table - 4
Restaurant Recommendations

Motivational Factors	Visit a restaurant based on a food vlogger's recommendation	Follow food vloggers to discover new restaurants and cafes	Food vlogs provide valuable insights into the dining experience of restaurants	Food vloggers are trustworthy and credible in their restaurant recommendations	Recommend and share the food vlogs and restaurant experiences with others
Restaurant Recommendations	0.227*	0.311**	0.162	0.037	0.212*
Sig. (2-tailed)	0.022	0.002	0.105	0.715	0.033
N	102	102	102	102	102

Table - 5
Cooking Tips & Techniques

Motivational Factors	Visit a restaurant based on a food vlogger's recommendation	Follow food vloggers to discover new restaurants and cafes	Food vlogs provide valuable insights into the dining experience of restaurants	Food vloggers are trustworthy and credible in their restaurant recommendations	Recommend and share the food vlogs and restaurant experiences with others
Cooking Tips & Techniques	0.210*	0.104	0.241*	-0.252*	-0.297**
Sig. (2-tailed)	0.034	0.300	0.015	0.010	0.002
N	102	102	102	102	102

Table - 6
Food Aesthetics

Motivational Factors	Visit a restaurant based on a food vlogger's recommendation	Follow food vloggers to discover new restaurants and cafes	Food vlogs provide valuable insights into the dining experience of restaurants	Food vloggers are trustworthy and credible in their restaurant recommendations	Recommend and share the food vlogs and restaurant experiences with others
Food Aesthetics	0.044	0.253*	0.305**	-0.071	0.265**
Sig. (2-tailed)	0.659	0.011	0.002	0.480	0.007
N	102	102	102	102	102

Above tables provide a correlation analysis of how different motivational factors influence five behaviours related to with food bloggers. The correlations were tested using Spearman's rho correlation coefficient, and the significance levels (p-values) indicate the strength and direction of the relationships. Here's a detailed interpretation of each factor and its relationship to the five behaviours:

- **Influence of Vlogger Popularity-** The "Number of Followers" shows significant positive correlations with all viewer behaviours. This suggests that more popular

vloggers have a broader and stronger influence on their audience across all measured aspects.

- **Restaurant Recommendations**-Positively correlates with visiting recommended restaurants ($r = 0.227$, $p < 0.05$) and following vloggers ($r = 0.311$, $p < 0.01$). However, it doesn't significantly correlate with trust in recommendations ($p = 0.715$), indicating a potential disconnect between following recommendations and trusting them.
- **Recipe Inspiration**- Shows significant positive correlations with most viewer behaviours. The strongest correlation is with sharing experiences ($r = 0.352$, $p < 0.01$), suggesting that recipe content is highly shareable. But no significant correlation with following vloggers to discover new places ($p = 0.160$), implying recipe content might not drive exploration behaviour.
- **Cooking Tips & Techniques**- Exhibits an unexpected negative correlation with trusting recommendations ($r = -0.252$, $p < 0.05$) and sharing experiences ($r = -0.297$, $p < 0.01$). This could indicate that viewers who value cooking tips might be more critical or self-reliant, less likely to trust or share others' recommendations.
- **Food Aesthetics**-Positively correlates with following vloggers ($r = 0.253$, $p < 0.05$), valuing insights ($r = 0.305$, $p < 0.01$), and sharing experiences ($r = 0.265$, $p < 0.01$). But no significant correlation with visiting recommended restaurants ($p = 0.659$), suggesting that visual appeal alone may not drive dining decisions.

4. The influence of food bloggers and influencers across different social media platforms on specific viewer behaviours

H₁₁- There is a significant difference between purchasing decision on food items or certain brands and the usage of social media platforms.

H₁₂: There is a significant difference between the perception of quality or taste of food items or certain brands and the usage of social media platforms.

H₁₃: There is a significant difference between adopting healthy dieting options and the usage of social media platforms.

H₁₄: There is a significant difference between sharing and recommending specific brands among others and the usage of social media platforms.

Table - 7**Correlation Between Social Media Usage and Influence of Food Vlogs on Consumer Behaviour**

Social Media Platform	Purchasing Decisions	Perception of Quality or Taste	Healthier Eating Options	Recommendation & Sharing
Instagram	0.027 (p = 0.788)	0.094 (p = 0.350)	0.068 (p = 0.500)	0.231 (p = 0.021) *
YouTube	0.022 (p = 0.829)	0.073 (p = 0.469)	0.182 (p = 0.068)	0.064 (p = 0.527)
Facebook	0.171 (p = 0.085)	0.063 (p = 0.526)	0.142 (p = 0.155)	0.060 (p = 0.548)
Twitter	0.107 (p = 0.285)	0.083 (p = 0.413)	0.179 (p = 0.071)	0.037 (p = 0.715)

The table provides insight into the relationship between the frequency of social media usage and various consumer behaviours influenced by food vlogs. These behaviours include purchasing decisions, perceptions of food quality, adopting healthier eating options, and recommending food items or brands to others.

§ Instagram-There is a link between Recommendation & Sharing and Instagram usage ($\rho=0.231$ $p=0.021$). This suggests that people who frequently use Instagram are more inclined to recommend and share food products or brands after viewing food vlogs. The noteworthy p value indicates a connection, between these factors. In this study findings indicate that there are connections, between Instagram use and buying choices or views, on product quality and healthier food options.

- YouTube- There are no connections found between YouTube usage and any of these behaviours since all p values exceed 0.05. This implies that YouTube usage, in this dataset doesn't have an impact, in shaping consumers' choices regarding food products and brands showcased in vlogs.
- Facebook- Like, with YouTube usage patterns do not seem to have a connection with any of the observed behaviours when it comes to Facebook use too. It suggests that those who use Facebook often are not really impacted much in terms of their buying choices or views and even their eating habits or sharing suggestions, from food related videos.
- Twitter- Twitter appears to have impact, on consumer behaviours based on the data analysis conducted as weak correlations were observed across all behaviours.

Findings and Implications

The analysis of the hypotheses regarding the relationship between gender and customer attitudes toward food bloggers and influencers reveals that:

- **Uniform Influence Across Genders:** The hypotheses three and five resulted in p-values of 0.05 and higher. It means that no significant statistical relationships exist between the gender and various attitudes towards food blogging and influencer. This means both male and female participants had similar viewpoints and behaviours regarding food content online.
- **Importance for Content Service Providers:** The observed neutrality of attitudes depending on gender implies that food bloggers, as well as brands, will not fear developing content on general thematic bases, and general interests. Thus, a wider audience reach and acceptance of food blogging, and marketing endeavours is possible.
- **Followers:** A significant number of followers is an important impacting factor of a blogger particularly on trust and possibility of open new restaurants.
- **Food aesthetics with recipes:** The two aspects i.e. recipe inspiration and food aesthetics complement engaging the viewers' attention and influence their behaviour, though they have differing effects with respect to trust and sharing behaviour.
- **Trust issues:** There are some exemplary content types and sources, that, resulted in a different level of trust. For instance, cooking tips tend to be trusted more than restaurant recommendations. Consumers are multi-faced when it comes to food vlogging, and to understand.

Limitations and Future Research

1. The study's focus on college students in Thrissur District limits its generalizability. Future research could expand to diverse age groups and geographical locations.
2. The research primarily examined correlations. Causal relationships could be explored through experimental designs in future studies.
3. The rapid evolution of social media platforms necessitates ongoing research to keep pace with changing user behaviours and platform features.
4. Future studies could delve deeper into the psychological mechanisms underlying trust formation and decision-making in the context of food vlogging.

5. The impact of emerging technologies, such as augmented reality or AI-driven recommendations, on food vlogging and consumer behaviour presents an exciting avenue for future research.

Conclusion

This study provides a comprehensive view of how food vlogs influence consumer behaviour in the digital age, particularly among young adults in Kerala. It highlights the complex interplay between content types, platforms, and consumer attitudes, offering valuable insights for content creators, marketers, and researchers in the evolving landscape of food-related digital media. As the field continues to evolve, understanding these dynamics will be crucial for effective engagement in the competitive realm of food tourism and consumption.

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Entangled Margins: The Portrayal of Marginalized Urban Spaces in Contemporary Indian English Fiction

Discipline: English

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Abstract

The modern Indian metropolis is a site of profound contradiction, where gleaming symbols of global capital coexist with vast zones of deprivation and informality. While official cartographies and state-led urban narratives often render these marginalized spaces invisible or pathologized, contemporary Indian English fiction has emerged as a crucial counter-discourse. This review paper argues that novelists such as Arundhati Roy, Aravind Adiga, Deepa Anappara, Vikas Swarup, and Jeet Thayil employ marginalized urban spaces—slums, ghettos, wastelands, and forgotten peripheries—not merely as backdrops but as central, agentive landscapes that are inextricably entangled with the city's core. Drawing upon the spatial theories of Henri Lefebvre and Edward Soja, and contextualized by insights from Indian urban studies, this paper analyzes how these literary works function as a form of spatial critique. By foregrounding the “lived space” of the urban poor, these novels challenge the dominant “conceived space” of planners and politicians, revealing the margin as a constitutive element of the urban whole. Ultimately, this fiction acts as a form of literary resistance, mapping spatial injustice and reclaiming the narrative of the city from the bottom up.

Keywords: Urban Space, Marginalization, Indian English Fiction, Spatial Justice, Henri Lefebvre, Edward Soja, Lived Space, Thirdspace, Contemporary India

1. Introduction: The City and its Shadows

The narrative of the 21st-century Indian city is often one of aspiration and acceleration. Cities like Mumbai, Delhi, and Bangalore are celebrated as engines of economic growth, nodes in a global network of capital and technology. This dominant narrative, propagated through media, policy documents, and urban planning initiatives, presents a sanitized vision of the “world-class” city—a landscape of gated communities, corporate towers, and beautified public spaces. Yet, this vision deliberately occludes its own shadow: the sprawling slums, precarious settlements, and polluted peripheries that house a significant portion of the urban population. These are the spaces where the

costs of neoliberal urbanization are borne, yet they are systematically erased from the official map of the city.

Contemporary Indian English fiction has taken up the urgent task of charting these occluded territories. Moving beyond the postcolonial preoccupations of an earlier generation, writers like Arundhati Roy, Aravind Adiga, Deepa Anappara, Vikas Swarup, and Jeet Thayil delve into the visceral realities of the urban margin. Their novels function as counter-geographies, offering complex, humanized portrayals of spaces often reduced to statistics of poverty or crime. This paper contends that these literary representations are not just sociological documents but are sophisticated acts of spatial analysis and resistance. They demonstrate that the margin is not an anomaly to be excised but is fundamentally *entangled* with the center, produced by the same economic and political forces that create the city's wealth.

To understand this entanglement, this review will employ the theoretical lens of critical spatial theory, primarily the work of Henri Lefebvre and Edward Soja. Their frameworks help us to see space not as a neutral container for social action but as a social product, imbued with power, ideology, and conflict. By analyzing key novels through this lens, and grounding the discussion in the specific context of Indian urbanism, this paper will demonstrate how literature provides a powerful medium for understanding and contesting spatial injustice in modern India.

2. Theoretical Framework: Producing and Inhabiting Urban Space

To analyze the fictional portrayal of urban margins, we must first move beyond a purely descriptive understanding of space. Henri Lefebvre's seminal work, *The Production of Space* (1991), provides a foundational framework. Lefebvre argues that space is produced through a dialectical interplay of three dimensions, his "spatial triad":

- **Spatial Practice (Perceived Space):** This is the physical, material space of everyday life and social production. It is the network of paths, homes, and workplaces through which people navigate their daily routines. In the context of our study, this is the tangible reality of the slum—the makeshift shelters, the shared water taps, the labyrinthine alleys.
- **Representations of Space (Conceived Space):** This is the abstract space of power, conceived by planners, architects, state officials, and capitalists. It is the space of maps, master plans, zoning laws, and economic models. This "conceived space" is dominant and seeks to impose a rationalized, homogenous order on the complex realities of the city. Slums, from this perspective, are illegal encroachments to be "cleared" or "redeveloped."

- **Representational Spaces (Lived Space):** This is space as directly lived, experienced, and imagined by its inhabitants. It is laden with symbolism, memory, and affect. “Lived space” is the domain of art, imagination, and resistance, where inhabitants appropriate and redefine the spaces they occupy, often in opposition to the “conceived space.” Literature, as a form of representation, operates powerfully within this dimension, articulating the “lived” experiences that official narratives ignore.

Building on Lefebvre, geographer Edward Soja (1996) developed the concept of Thirdspace. For Soja, Thirdspace is a “radically open” and hybrid conceptualization that seeks to transcend the dualism between the material (Firstspace) and the mental (Secondspace). It is a space of “lived spatiality,” where the real and imagined, the objective and subjective, merge. Thirdspace is a site of critical exchange and resistance, a place where marginalized groups can challenge dominant spatial orders and imagine alternative ways of being. These theoretical tools are particularly potent when applied to the Indian urban context. Scholars of Indian urbanism, such as Gautam Bhan (2016) and Ravi Sundaram (2009), have highlighted how “informality” is not a temporary phase but a persistent and structural feature of the Indian city. The slum is not an exception but a key mode of urban settlement, produced by state failure, exclusionary planning, and the demands of a flexible labor market. The literary works discussed below tap directly into this reality, exploring the “lived space” of informality as a complex social world and a site of political contestation.

3. Literary Cartographies of the Margin

The selected novels offer distinct but complementary maps of India’s entangled margins, each using its unique narrative strategy to illuminate the relationship between space, power, and identity.

3.1. Arundhati Roy’s *The Ministry of Utmost Happiness*: The Wasteland as Sanctuary

Arundhati Roy’s novel is a sprawling epic that finds its geographical and emotional anchor in the most marginal of spaces: a graveyard in Old Delhi. For Anjum, a hijra who has been cast out from her community, the graveyard is not a space of death but of rebirth. She establishes the *Jannat* (Paradise) Guest House among the tombstones, creating a sanctuary for the city’s outcasts—social, political, and religious minorities who have been pushed to the peripheries of the nation-state.

In Lefebvre’s terms, the graveyard is a powerful example of “lived space” being reclaimed from the city’s derelict lands. It is a space that defies the logic of the “conceived space” of urban development, which sees land only in terms of its real estate value. Roy

writes, “She lived in the graveyard like a tree. At first, she spent her days holding onto the gravestones, trying to keep her balance” (Roy, 2017, p. 53). This organic metaphor emphasizes a deep, symbiotic relationship with a space that the official city has discarded. The *Jannat* Guest House becomes a Soja-esque Thirdspace—a real and imagined location where a new, inclusive community can be forged out of shared vulnerability. By centering her narrative in this marginal space, Roy argues that true belonging and justice in modern India may only be found in the places and among the people that the state has abandoned. The graveyard is not peripheral to the story of Delhi; it is its moral and political heart.

3.2. Aravind Adiga’s *The White Tiger*: The Spatial Logic of Servitude

Aravind Adiga’s Booker Prize-winning novel offers a starkly different, though equally critical, perspective on urban marginalization. Narrated by Balram Halwai, a driver from “the Darkness” of rural Bihar, the novel maps the geography of servitude in the gleaming metropolis of Delhi and Gurgaon. Balram’s world is spatially defined by his subordinate status. He inhabits the interstitial spaces of the elite world he serves: the cramped servant’s quarters below a luxury apartment, the driver’s seat of a Honda City, the marketplaces where he runs errands. Adiga masterfully employs spatial metaphors to critique the deep-seated inequalities of the “New India.” The city is divided into “the Light” (the world of his masters) and “the Darkness” (the world of the poor). This is not just a social but a spatial binary. Balram’s existence is defined by his physical and psychological confinement within what he calls “the Rooster Coop”—a system that keeps the poor trapped by family loyalty and a fear of retribution. His violent act of murdering his master is framed as a spatial transgression, a radical breakout from this conceived and lived cage. “The coop is guarded from the inside,” he explains (Adiga, 2008, p. 176). By killing his master and escaping to Bangalore to become an entrepreneur, Balram doesn’t just change his class status; he violently reclaims space, moving from the periphery to the center. *The White Tiger* thus exposes how the glitter of the globalized city is built upon a foundation of spatial segregation and brutal exploitation.

3.3. Deepa Anappara’s *Djinn Patrol on the Purple Line* and Vikas Swarup’s *Q & A*: The Slum as a Lived World

Both Anappara’s and Swarup’s novels use the perspective of young protagonists to provide an intimate, ground-level view of slum life, challenging the monolithic and often dehumanizing “representations of space” found in media and policy. Vikas Swarup’s *Q & A* (2005), famously adapted as the film *Slumdog Millionaire*, uses a quiz show framework to narrate the life of Ram Mohammad Thomas, an orphan from

Dharavi, Asia's largest slum. Each question triggers a memory, and through these flashbacks, the reader is given a tour of the slum's complex social fabric. The slum is not merely a site of suffering; it is a place of friendship, survival, ingenuity, and community. Swarup maps the "spatial practice" of the slum, revealing it as a functioning, albeit precarious, ecosystem that official planning fails to recognize.

Deepa Anappara's *Djinn Patrol on the Purple Line* (2020) provides an even more immersive and poignant cartography of a fictional *basti* on the edge of a city. Narrated by nine-year-old Jai, the novel follows his amateur investigation when children from his neighborhood start disappearing. Through Jai's eyes, the *basti* is rendered not as a homogenous zone of poverty but as a rich tapestry of specific places: the chai stall, the garbage mounds that are also playgrounds, the railway tracks, the half-finished high-rises at its border. Anappara powerfully illustrates the concept of "lived space." For Jai and his friends, the polluted canal is a place for adventure, and the smoggy sky has its own unique beauty. However, the novel also exposes the brutal reality of spatial injustice. When the children disappear, the police are indifferent, and the state is absent. The *basti*'s marginality makes its residents disposable. The familiar "lived space" becomes a site of terror, demonstrating how the vulnerability of marginalized populations is spatially determined. The state's neglect transforms a community into a hunting ground.

3.4. Jeet Thayil's *Narcopolis*: Mapping the Subterranean City

Jeet Thayil's *Narcopolis* (2012) charts a different kind of margin: the subterranean, nocturnal world of opium dens, brothels, and back alleys of 1970s and 80s Bombay. This is a city that exists outside official time and space, a "lived space" organized around the rituals of addiction, art, and queer desire. The novel's central locale is an opium den on Shuklaji Street, a space that functions as a confessional, a community center, and a portal to an alternative reality for its diverse patrons.

Thayil's prose is hallucinatory and poetic, creating a cognitive map of a forgotten Bombay. His narrator states, "Bombay, which obliterated its own history by changing its name and surgically altering its face, is the hero or heroin of this story" (Thayil, 2012, p. 1). This personification of the city highlights the novel's project: to recover the erased histories embedded in its marginal spaces. *Narcopolis* presents a counter-narrative to the official story of Bombay as a dynamic commercial hub. It reveals a hidden city, a "Thirdspace" where identities are fluid and the dispossessed find a form of transient belonging. By mapping this underworld, Thayil resists the sanitizing process of urban development that seeks to erase such "unproductive" and "immoral" spaces from the city's landscape and memory.

4. Discussion: Literature as Spatial Resistance

Read together, these novels constitute a powerful form of spatial resistance against the hegemonic narratives of the Indian city. Their contributions can be summarized in three key ways. First, they prioritize “lived space” over “conceived space.” By immersing the reader in the sensory and emotional textures of marginalized environments, they challenge the abstract, data-driven logic of urban planners and policymakers. They replace the map of the state with a map of human experience, revealing the complexity, resilience, and agency of those who inhabit the margins.

Second, they reveal the *entanglement* of the margin and the center. Adiga’s Balram is not separate from the world of his masters; his cheap labor is what enables their luxurious lifestyle. The children in Anappara’s novel disappear at the edge of a new development, their precarity a direct consequence of the city’s uneven growth. Roy’s graveyard sanctuary is a response to the violence and exclusion produced by the mainstream nation-state. These novels insist that one cannot understand the gleaming towers of the Indian metropolis without understanding the slums and wastelands from which labor is extracted and to which human refuse is exiled.

Third, these literary works function as acts of “counter-mapping,” to borrow a term from critical cartography. They create alternative geographies that contest the power embedded in official maps. They chart the invisible social networks, the hidden histories, and the emotional landscapes that make up the real city. In doing so, they perform a crucial political act: they make the invisible visible, giving narrative form and voice to those who have been spatially and politically silenced. They articulate a powerful claim for the “right to the city,” in Lefebvre’s terms—not just the right to access urban resources, but the right for all inhabitants to shape and define the city they live in.

5. Conclusion

The portrayal of marginalized urban spaces in contemporary Indian English fiction is far more than a trend in literary realism. It is a vital intervention in the ongoing struggle over the meaning and future of the Indian city. The works of Arundhati Roy, Aravind Adiga, Deepa Anappara, Vikas Swarup, and Jeet Thayil demonstrate the unique capacity of literature to dissect and challenge the structures of spatial injustice. By applying the theoretical lenses of Lefebvre and Soja, we can appreciate these novels as sophisticated spatial analyses that expose the ideological underpinnings of urban development and give voice to the “lived” realities of the marginalized.

These entangled margins—the graveyard, the servant’s quarter, the slum, the opium den—are not footnotes to the story of modern India. As these authors compellingly argue, they are the central text. They are the spaces where the contradictions of a

nation in transition are most starkly revealed and where new forms of community and resistance are being forged. In a world where urban futures are increasingly being dictated by the logic of capital, this body of fiction serves as a powerful reminder that the city is, above all, a human creation. It offers not only a critique of the present but also the imaginative resources to envision a more just, inclusive, and humane urban existence.

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Domestic and Global Dynamics of the Drinking Water Industry in India: An Evaluation of its Scope, Prospects, and Challenges

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Abstract

India owns substantial freshwater resources but, at the same time, the country faces the issue of safe and pure drinking water accessibility. This paper evaluates the advent and growth of the drinking water industry in India. It conducts a review of the scope of the bottled water market, the point-of-use (PoU) water purifier sector and emerging community water systems. The study examines the major internal dynamics such as including socio-economic changes and issues of water pollution crucially affecting the industry. The paper throws light into the global dynamics of the industry. The paper also explores the prospects and challenges of the drinking water industry in India.

Keywords: Drinking Water, Bottled Water, Water Purifiers, Public-Private Partnership (PPP)

1. Introduction

Water is the bedrock of life, public health, and economic development. The United Nations' Sustainable Development Goal 6 (SDG 6) clearly calls for ensuring the availability and sustainable management of water and sanitation for all. However, for India, a nation of over 1.4 billion people, achieving this goal remains a monumental task. The country is home to 18% of the world's population but possesses only 4% of its renewable freshwater resources (NITI Aayog, 2019). This inherent scarcity is combined by high rate of pollution, inefficient management, and the impacts of climate change, leading to a situation where a significant portion of the population lacks access to safe drinking water. The Government of India has long acknowledged this crisis, with initiatives like the National Rural Drinking Water Programme and the more recent Jal Jeevan Mission (JJM), which aims to provide functional household tap connections

to all rural households by 2024. The drinking water industry of the nation comprises multinational corporations selling bottled mineral water to local entrepreneurs operating community-based reverse osmosis (RO) plants. This paper seeks to analyse the complex interplay of domestic and global forces shaping this industry. It provides a critical evaluation of the contemporary scope, future prospects for growth and innovation and the major challenges of the drinking water industry of India.

The Evolving Scope of India's Drinking Water Industry

The drinking water industry in India can be deconstructed into four key areas. Understanding their individual characteristics is crucial to grasping the overall complexity of the sector.

- **Public Water Supply Infrastructure** The foundation of water provision in India is the state-run public utility system, managed by municipal corporations in urban areas and public health engineering departments in rural settings. The shortcomings of this system to deliver safe and reliable water to the needy areas is the major reason for the growth of the private market.
- **The Bottled Water Segment:** The most visible face of water commodification is the bottled water market. This segment has witnessed exponential growth, driven by a burgeoning middle class, increased health consciousness, urbanization, and a thriving tourism sector. According to market analysis, the Indian bottled water market is projected to grow at a compound annual growth rate (CAGR) of over 13% between 2022 and 2027 (Mordor Intelligence, 2022). The market is dominated by a few key players, including Bisleri International (a domestic pioneer), Coca-Cola (Kinley), PepsiCo (AquaFina), and Parle Agro (Bailley), alongside a vast, unorganized sector of smaller local brands. This segment ranges from basic packaged drinking water to premium natural mineral water, catering to diverse consumer price points.
- **The Water Purifier (Point-of-Use):** Market for households seeking a long-term, in-home solution, the point-of-use (PoU) water purifier market has become indispensable. This segment is technologically diverse, offering products based on Reverse Osmosis (RO), Ultra-Violet (UV), and Ultra-Filtration (UF) technologies, often in combination. RO purifiers, in particular, have gained immense popularity due to their effectiveness in removing dissolved solids, a common problem in areas with hard water or industrial contamination. Key players like Eureka Forbes, Kent RO Systems, and Hindustan Unilever (Pureit) dominate the organized market.

- **Community Water Systems and Water ATMs:** A hybrid model gaining traction, particularly in underserved communities, involves decentralized community-level water treatment plants. These are often set up as small-scale enterprises or through PPP models, where raw water is treated (typically via RO) and dispensed at a nominal cost through automated vending machines, popularly known as “water ATMs.” These systems provide an affordable alternative to expensive bottled water but still require consumers to pay for a resource that is constitutionally recognized as a fundamental right to life (Article 21 of the Indian Constitution).

Table 1: Bottled Water Market Size of Few Nations

Countries (Bottled Water Market Sales Revenue)	2021	2025	Compound Annual Growth Rate (CAGR)
United States	\$ 79.766 Billion	\$ 99.561 Billion	5.621%
Europe	\$ 75.565 Billion	\$ 96.886 Billion	6.352%
United Kingdom	\$ 12.77 Billion	\$ 17.149 Billion	7.647%
Germany	\$ 17.002 Billion	\$ 22.478 Billion	7.134%
Russia	\$ 10.806 Billion	\$ 13.37 Billion	5.253%
Japan	\$ 9.08 Billion	\$ 12.12 Billion	7.466%
China	\$ 22.287 Billion	\$ 31.177 Billion	8.375%
India	\$ 6.769 Billion	\$ 10.138 Billion	10.435%

Source: <https://www.cognitivemarketresearch.com/bottled-water-market-report>

2. Domestic Dynamics Shaping the Industry

The industry’s trajectory is profoundly influenced by a set of interconnected domestic factors.

- **Socio-Economic Drivers:** Rapid urbanization and the rise of a large, aspirational middle class with higher disposable incomes are primary growth engines. This demographic is increasingly aware of waterborne diseases and willing to pay a premium for perceived safety, whether through bottled water or home purifiers. This “push” from failing public services is met by a “pull” from aspirational consumption patterns and health-conscious lifestyles.

- **Water Scarcity and Contamination Crisis:** The deteriorating quality of India's water sources is arguably the most critical driver. The NITI Aayog (2019) report grimly noted that nearly 70% of India's water supply is contaminated. Groundwater, the source for over 80% of drinking water, is severely over-exploited and increasingly tainted with industrial effluents, pesticides, and geogenic contaminants like arsenic and fluoride (Central Ground Water Board, 2021). This pervasive quality crisis makes private purification and packaged water not just a choice but a necessity for many.
- **Policy and Regulatory Landscape:** The regulatory framework governing the private water industry is fragmented and often poorly enforced. While the Bureau of Indian Standards (BIS) has mandatory certification (IS 14543) for packaged drinking water, the unorganized sector frequently flouts these norms. The regulation of groundwater extraction for commercial use remains a contentious issue, governed by disparate state-level policies and often failing to prevent unsustainable water mining. Furthermore, there are no stringent regulations concerning the environmental impact of RO water purifiers, which waste significant amounts of water as brine reject. This regulatory ambiguity creates both opportunities for market players and significant risks for consumers and the environment.

3. Global Dynamics and Influences

The Indian drinking water industry does not operate in a vacuum. It is deeply integrated into global economic, technological, and ideological currents.

- **Foreign Direct Investment (FDI) and Multinational Corporations (MNCs):** The Indian market's vast potential has attracted significant FDI and the entry of global beverage giants like Coca-Cola, PepsiCo, and Danone. These MNCs bring substantial capital, advanced marketing strategies, and extensive distribution networks, which have helped standardize and expand the market. However, their operations have also sparked considerable controversy, particularly regarding their massive groundwater extraction in water-stressed regions, leading to protests and legal battles, such as the Plachimada case in Kerala against Coca-Cola (Shiva, 2016).
- **International Standards and Best Practices:** Global health bodies like the World Health Organization (WHO) set the benchmark for drinking water quality standards, which influence national regulations and consumer expectations. Furthermore, global trends in corporate social responsibility (CSR) and sustainability are compelling companies, especially MNCs, to adopt more

responsible water management practices and invest in community water projects, albeit with varying degrees of success and sincerity.

- **Global Technology Transfer:** The Indian water purifier market is a direct beneficiary of global technology transfer. Key components, such as high-efficiency RO membranes and advanced UV lamps, are often imported from countries like the USA, Japan, and Germany. This influx of technology enables Indian companies to offer state-of-the-art products, but it can also create dependencies on international supply chains.
- **The Global Discourse - Water as a Human Right vs. a Commodity:** The expansion of India's private water market is a local manifestation of a global debate. Proponents of privatization argue that market mechanisms introduce efficiency, investment, and consumer choice where state systems have failed (World Bank, 2004). Conversely, critics argue that commodifying water is ethically untenable, as it systematically excludes the poor and marginalized who cannot afford to pay. This perspective, championed by civil society organizations and UN rapporteurs, posits that access to safe water is an inalienable human right that the state has a non-delegable duty to provide. This ideological tension frames the entire debate around the legitimacy and social impact of the private water industry in India.

Table 2: Market Size and Share for Major Multinational Bottled Water Brands in India for 2025

Brand	Market Share (%)	Estimated Market Size (USD Billion)	Parent Company
Bisleri	36	2.98	Bisleri International
Kinley	28.3	2.34	Coca-Cola
Aquafina	19.1	~1.58	PepsiCo

Source: <https://www.maximizemarketresearch.com/market-report/india-bottled-water-market/20197/>

Tabl 3: The Value of Bottled Water Exports from India from 2020 to 2025

Year	Country	Approximate Export Value (USD Million)
2020	United States (Largest importer from India, about 24% export share)	5.0
2020	Bhutan (Second largest importer, about 18% export share)	3.7
2020	United Arab Emirates (Third largest importer, about 14% export share)	2.9
2021-2024	United States	5.5 - 7.0
2021-2024	Bhutan	4.0 - 5.1
2021-2024	UAE	3.2 - 4.4

Source: <https://www.volza.com/p/water-bottle/export/export-from-india/>

4. Prospects and Opportunities

In spite of the major challenges, the industry is exhibiting substantial growth, as a result of numerous opportunities.

- **Market Growth and Expansion:** The market remains far from saturated, especially in rural and semi-urban areas. As disposable incomes rise in these regions, the demand for packaged water and affordable purifiers is expected to surge. Furthermore, there is a growing trend of “premiumization,” with companies introducing value-added products like alkaline water, vitamin-fortified water, and flavoured water to cater to niche urban segments.
- **Technological Advancements:** Innovation is a key prospect. The development of “smart” IoT-enabled water purifiers that monitor water quality and filter life in real-time, more water-efficient RO technologies, and low-cost, electricity-free purification methods for rural markets represent significant growth areas. Advances in nanotechnology and materials science could lead to next-generation filters that are more effective and sustainable.
- **Public-Private Partnerships (PPPs):** PPPs hold the potential to bridge the gap between public service obligations and private sector efficiency. Well-structured partnerships could leverage private capital and operational expertise to upgrade public water treatment plants, manage distribution networks, or scale up community-level water enterprises. However, the success of PPPs hinges on

robust regulatory oversight, transparent contracts, and mechanisms to ensure affordability and accountability to the public.

5. Challenges and Critiques

The rapid growth of the private water industry is fraught with severe and systemic challenges.

- **Equity and Accessibility:** The most damning critique is that the industry creates a two-tiered system of water access: one for those who can pay for safe, private solutions, and another for those who cannot and are left to rely on contaminated or unreliable public sources. This commodification effectively disenfranchises the poor, turning a basic human right into a privilege. The proliferation of water ATMs, while seemingly affordable, still imposes a cost that can be prohibitive for the most impoverished households.
- **Environmental Sustainability:** The environmental footprint of the industry is alarming. First, the bottled water segment is a major contributor to plastic pollution. A lack of effective waste management infrastructure means that billions of PET bottles end up in landfills, rivers, and oceans. Second, both bottling plants and RO purifiers rely heavily on groundwater extraction, contributing to the depletion of aquifers in already water-stressed regions (Shashi, 2019). Third, domestic RO purifiers are notoriously inefficient, rejecting as much as 3-4 liters of water for every litre they purify. This brine reject, with its high concentration of total dissolved solids (TDS), is typically discharged into drains, adding to surface water pollution.
- **Regulatory Deficits and Enforcement Issues:** As a result of the certain gaps in regulations, the bottled water poses significant public health risks from impure or substandard products. There is a lack of clear policy on the sustainable management of RO brine discharge and a failure to enforce groundwater extraction norms on commercial bottlers rigorously. This regulatory vacuum allows for practices that are both environmentally and socially detrimental.
- **Public Health Implications:** While purifiers and bottled water can protect against microbial contamination, the widespread use of RO technology has raised concerns about the demineralization of water. Consuming water stripped of essential minerals like calcium and magnesium over the long term may have adverse health effects. This highlights a paradox where a solution to one health problem may inadvertently contribute to another.

Conclusion

The drinking water industry in India is a dynamic and complex ecosystem. The analysis reveals that the scope of this industry is multidimensional, its growth is driven by powerful domestic and global forces, and its prospects are substantial. However, these prospects are overshadowed by formidable challenges that strike at the heart of sustainable and equitable development. The industry imposes severe environmental costs through groundwater depletion, plastic pollution, and water wastage. The path forward requires a paradigm shift. There must be a solid mechanism to modernize public water infrastructure to deliver safe, reliable, and affordable water to all citizens. Concurrently, the government must implement a strong regulatory framework for the private water industry. This framework must address the entire lifecycle of the product starting from sustainable sourcing of water and responsible manufacturing to waste management and consumer protection.

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A Study on the Impact of the Kerala Paddy and Wetland Conservation Act 2008: An Analysis of Area, Production, and Productivity Trends

Discipline: Economics

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Abstract

The steady decline in paddy cultivation area has been a significant concern for food security in Kerala. In response, the Government of Kerala enacted the Kerala Paddy Land and Wetland Conservation Act in 2008, aimed at protecting existing paddy fields from conversion to other uses. This study evaluates the impact of this Act by comparing trends in the area under cultivation, production output, and productivity (yield per hectare) of rice in Kerala for the periods before (2000-01 to 2009-10) and after (2010-11 to 2020-21) the implementation of the Act. Data from the Kerala Agricultural Statistics and other government publications are analyzed. The findings indicate that while the Act appears to have contributed to a stabilization of the area in the latter part of the study period and a significant, consistent improvement in productivity. This suggests that the Act, alongside other supportive measures, has been successful in intensifying cultivation on protected lands, though challenges in expanding the cultivation area persist.

Keywords: Paddy Cultivation, Wetland Conservation Act 2008, Agricultural Policy, Productivity, Food Security.

Introduction

Rice cultivation has been facing a persistent crisis for decades. Driven by economic factors like rising costs of labour, low profitability compared to other cash crops, and rapid urbanization, large areas of paddy fields were being converted for commercial and residential purposes. This conversion led to a large reduction in the area under paddy cultivation, threatening the state's food security, water security, and ecological

health of its wetland ecosystems. Recognizing this alarming trend, the Government of Kerala enacted a pioneering legislation, The Kerala Paddy Land and Wetland Conservation Act, 2008. The main objective of this Act was to arrest the indiscriminate conversion of paddy fields and wetlands by imposing strict regulations on their use and by prioritizing their conservation for agricultural purposes. The Act mandated that these lands could not be used for any purpose other than cultivation without government permission. Over a decade has passed since its implementation, creating a need for empirical evidence to assess its effectiveness. This study aims to fill this gap by conducting a data-driven analysis to examine whether the Act has achieved its intended goals.

Significance of the Study

Rice or paddy cultivation holds immense economic, environmental, and cultural significance in Kerala. It supports the objective of food security, rural livelihoods, and biodiversity through its wetland ecosystems. However, the state has experienced a drastic conversion of paddy lands to non-agricultural uses, threatening these benefits. Understanding the effectiveness of conservation policies like the 2008 Act is vital for sustainable agricultural and environmental management in the region and similarly vulnerable Agro-ecological zones. The findings can inform policymakers, agricultural departments, and environmental agencies in refining existing strategies and formulating new ones to promote sustainable paddy cultivation.

Research Gap

Previous research on the subject has documented paddy decline trends, but this study evaluated policy impacts through systematic before-and-after analyses. There is a scarcity of studies that quantitatively examine its impact using long-term, official time-series data on area, production, and productivity. Many discussions are focus on case studies of specific regions. A comprehensive statistical analysis comparing pre- and post-act periods at the state level is necessary to provide a macro-level perspective on the Act's efficacy. This study seeks to address this gap by utilizing dataset from official state publications.

Objective

- To examine the changes in area, production and productivity of paddy cultivation by comparing data before and after the Act

Methodology

This study adopts a quantitative research design, specifically a time-series analysis. The data is divided into two distinct periods for comparative analysis: Pre-Act Period: 2000-01 to 2009-10 and Post-Act Period: 2010-11 to 2020-21. The study mainly

made use of data from Kerala Agricultural Statistics. Important variables analyzed are Area under paddy cultivation (hectares), Total production (tons) and Productivity (kilograms per hectare). The analysis employs descriptive statistics and Growth rate calculation.

Analysis

• Area

Area Under Cultivation from Table 1 shows that between 2000-01 and 2009-10, paddy cultivation area reduced significantly from 347,455 to 234,013 hectares, averaging a 32.6% decline due to land conversion pressures. Post-Act (2010-11 to 2020-21) data from Table 2 shows that the area continued to decline but at a slower rate, from 213,187 to 205,040 hectares (3.8% decline), suggesting some effectiveness of the Act in moderating area loss. The data in the pre-Act period shows a clear and huge decline in the area under paddy cultivation. The average area fell from 282,723 hectares in the pre-act period to 198,736 hectares in the post-act period—a decrease of nearly 30%. The pre-act period shows a consistent downward trend, and the post-act period begins at a much lower base (213,187 Ha). Crucially, while the decline continues initially, the area appears to stabilize after 2016-17, fluctuating between 194,000 and 205,000 hectares. This suggests that the Act may have successfully halted the freefall, even if it could not reverse the trend.

Table 1 Area, Production and productivity of Rice in Kerala from 2000-01 to 2009-2010 (Pre Act period)

year	Area (hectares)	Production (Tons)	Productivity(kg/He)
2000-01	347455	751300	2162
2001-02	322368	703504	2182
2002-03	310521	688859	2218
2003-04	287340	570045	1984
2004-05	289974	667105	2301
2005-06	275742	629987	2285
2006-07	263529	641575	2435
2007-08	228938	528488	2308
2008-09	234265	590271	2520
2009-10	234013	598339	2557

Source: Kerala Agricultural Statistics 2023

Table 2 Area, Production and productivity of Rice in Kerala from 2010-11 to 2020-2021 (Post Act period)

year	Area (Hectares)	Production (Tons)	Productivity (Kg/He)
2010-11	213187	522738	2452
2011-12	208161	568990	2733
2012-13	197277	508299	2577
2013-14	199611	564325	2827
2014-15	198159	562092	2837
2015-16	196870	549275	2790
2016-17	171398	436483	2547
2017-18	194235	521310	2684
2018-19	202907	578256	2920
2019-20	198180	587078	3073
2020-21	205040	633739	3105

Source: A compendium of Agricultural Statistics Kerala 2023

• Production Trends

Production mirrored area trends with a decline from 751,300 tons in 2000-01 to 598,339 tons in 2009-10, a 20.4% overall decrease. Surprisingly, post-Act period production stabilized and increased from 522,738 tons in 2010-11 to 633,739 tons in 2020-21, a 21.2% increase despite reduced area, highlighting improvements in productivity and agricultural practices. Mirroring the area trend, average annual production was higher in the pre-act period (636,877 tons) than in the post-act period (552,689 tons). Production is highly correlated with area. However, it is noteworthy that despite a significantly smaller cultivated area, post-act production levels are only about 13% lower than pre-act levels, not 30%. This is directly attributable to gains in productivity.

• Productivity Analysis

Productivity rose substantially over both periods, from 2,162 to 2,557 kg/hectare pre-Act (18.3% increase), and from 2,452 to 3,105 kg/hectare post-Act (26.6% increase). This suggests successful adoption of better cultivation methods and policy support enhancing yield efficiency. This is the most positive finding. Average productivity increased significantly from 2,285 kilogram per hectare in the pre-act period to 2,786 kilograms per hectare in the post-act period—a rise of over 20%. The pre-act period

saw productivity fluctuate, ending at 2,557 kg/Ha. The post-act period demonstrates a remarkably steady and strong upward trend, rising from 2,452 kg/Ha (2010-11) to 3,105 kg/Ha (2020-21). This indicates a dramatic improvement in the efficiency of paddy cultivation.

Findings

The 2008 Conservation Act contributed to slowing the rapid loss of paddy land, demonstrated by the marked reduction in area decline rate. Production and productivity increase in the post Act period. The acceleration in productivity growth highlights the success of intensification efforts. The findings present a clear picture of the effect of the Kerala Paddy Act. The legislation was not a panacea that reversed decades of decline in paddy area. However, the analysis strongly suggests that the Act was effective in its primary goal and it acted as a brake on the unrestrained conversion of paddy fields. The stabilization of the area under cultivation in the latter half of the post-act period is a major achievement of this Act. It indicates that the legal barrier created by the Act made conversion difficult, preserving a core base of paddy land.

The most striking success story is the phenomenal rise in productivity. This improvement cannot be attributed to the Act alone but is likely the result of a combined effect. The Act provided the foundational land security, which encouraged investments and the adoption of yield-enhancing technologies. This was probably complemented by government schemes like subsidies for high-yielding seed varieties, support for mechanization, better water management practices and initiatives like the collective cultivation model- group farming. The Act ensured that these productivity-enhancing investments are successful in securing long-term returns.

Conclusion

This study concludes that the Kerala Paddy Land and Wetland Conservation Act, 2008, has had a measurably positive impact on rice cultivation in Kerala. While it did not reverse the historical decline in the total area under paddy, it appears to have been instrumental in stabilizing the area under cultivation by significantly slowing the rate of conversion and loss of paddy fields after 2008. And also creating an environment for increase in productivity (yield per hectare) by securing the land base for agriculture. The Kerala Paddy and Wetland Conservation Act of 2008 show measurable success in conserving agricultural land and improving productivity, successively stabilizes paddy production. However, total area and production still face pressures, indicating the need for strengthened enforcement, enhanced farmer incentives, and integrated land-use planning. Legislative protection, combined with supportive economic and technological measures, is key for sustainable paddy cultivation in Kerala.

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A Study on the Effectiveness of Haritha Karma Sena in Wadakkanchery Municipality

Discipline: Economics

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Abstract

Analysing how effectively Haritha Karma Sena handles garbage disposal, segregation, and recycling is one of the main goals of this study. Waste management in Kerala has advanced remarkably, and Wadakkanchery's Haritha Karma Sena is essential to maintaining the municipality's sustainability and cleanliness. The study's findings may be used to pinpoint best practices and suggest enhancements to improve environmental preservation and solid waste management. Many Kadambashree members have access to economic options through the Haritha Karma Sena. This study will clarify how Haritha Karma Sena empowers women by providing jobs and encouraging social inclusion. The study highlights the relationship between environmental activities and social empowerment by examining how Haritha Karma Sena has contributed to raising the living conditions of its members. The results of this study may influence state and municipal government regulations meant to improve the effectiveness and sustainability of waste management procedures. This will assist legislators in improving their approaches and allocating funds to better support programs such as Haritha Karma Sena. Recognizing Haritha Karma Sena's efficacy also emphasizes its function in teaching the public about recycling, waste reduction, and segregation. The study may increase knowledge and cooperation in waste management at the local level by encouraging community involvement.

Keywords

Haritha Karma Sena, garbage disposal, segregation, recycling, local self-government, Kudumbashree

1. Introduction

The Haritha Keralam Mission is one of four missions established by the state government to create a new Kerala. The Mission was established on December 8, 2016, with the goals of encouraging cleanliness, water abundance, water security, and safe food production. The Haritha Keralam Mission has already achieved outstanding results in a variety of fields relating to the state's environmental characteristics. Water, Hygiene, and Harvest is the mission's distinctive motto, and it clearly states its objectives. The Haritha Keralam Mission consists of three sub-missions: water conservation, sanitation and waste management, and agriculture. Haritha Karma Sena is an initiative that works with Kerala local self-government authorities to manage garbage and provide sanitation. 2017 saw the establishment of Haritha Karma Sena in local self-government organizations as a part of the Kerala government's Haritha Keralam Mission Project. Haritha Karma Sena is a professional team made up of green technicians and green supervisors, primarily Kudumbashree women, who will be in charge of waste collection, transportation, processing, recycling/disposal, and management in collaboration with respective LSGs and the Suchitwa Mission. The mission seeks to achieve the following goals: Make Kerala a garbage-free state. To encourage sustainable waste management practices. To generate employment possibilities in the waste management industry. To educate the public about the importance of trash management. The Haritha Karma Sena waste management system stands as a pioneering model for sustainable waste management. Its emphasis on community involvement, waste segregation, and recycling has led to significant improvements in sanitation and environmental sustainability. By addressing challenges and continuing to innovate, the system has the potential to serve as a model for other regions seeking to implement effective waste management solutions.

2. Objectives

- To analyse the effectiveness of Haritha karma sena in wadakkanchery municipality
- To examine the satisfaction and challenges of Haritha karma sena in the sample area

3. Literature Review

- Parvathy Ravikumar (2024) To examine the purpose of the study is to ascertain how Keralans view the Haritha karma Sena's contribution to sustainable development and trash management. The primary goals are to evaluate how the general public views Sena's efficacy and implementation in tackling the state's most pressing issue, which is the accumulation of waste and the absence of waste management procedures.

- Nishad, A. (2024) Study the Haritha Karma Sena, based in Kerala, India, promotes trash management and environmental conservation. The study examines its techniques, impact, and factors influencing trash management. Challenges include habit change, restricted participation, and financial constraints. The report recommends initiatives to raise awareness, community participation, coordination with local governments, and financial assistance to increase efficiency. Implementing incentives and sustainable garbage disposal strategies can contribute to a cleaner, greener world. Continuous monitoring and assessment are critical for future improvement.
- Kannankai, M. P., Sherin, F., & Devipriya, S. P. (2024) Examine Kerala's decentralized solid waste management strategies take a people-centered approach to handling plastic trash. An online poll indicated a 62% plastic waste literacy rate, with women and the elderly becoming more ecologically conscientious. However, poor disposal practices persist, particularly in metropolitan areas. The Haritha Karma Sena's plastic waste collection program garnered excellent comments, although the public is opposed to user fees. This research seeks to enhance garbage disposal effectiveness and increase its adoption in underdeveloped countries.
- Kumar, G., Vyas, S., Sharma, S. N., & Dehalwar, K. (2024) The study focuses on the environmental health concerns associated with inappropriate garbage collection in Indian cities, particularly in peri-urban areas. The study stresses the importance of public education on proper garbage disposal behaviors, effective waste disposal in municipal areas, and consistent street maintenance and cleaning. The issues include insufficient garbage disposal infrastructure, inadequate waste segregation, low public awareness, and inadequate waste disposal in the informal sector. Inefficient collection and delivery methods, out-of-date government laws, and a lack of access to innovative waste management technologies exacerbate the situation. A comprehensive strategy encompassing infrastructural upgrades, awareness raising, enhanced policies, and informal sector participation is required.
- Sharma, S. N., Dehalwar, K., & Singh, J. (2024) This study emphasizes the relevance of innovative solid waste management strategies, such as recycling, composting, and waste-to-energy technology, in lowering worldwide waste volume. These approaches can help to reduce greenhouse gas emissions, boost resource efficiency, and improve public health outcomes. They help to achieve sustainable development objectives like sustainable urbanization, environmental sustainability, and public health. The study's goal is to help policymakers and

waste managers choose the most appropriate waste management approach for their communities

4. Research Methods

This study adopts both qualitative and quantitative approaches to assess the effectiveness of Haritha Karma Sena in managing garbage disposal, segregation, and recycling. The study is based on both primary and secondary data. The primary data are collected from 30 Haritha karma sena workers and 30 beneficiaries in wadakkanchery municipality. The primary data has been collected by using well-structured pre designed schedules through personal interview method. Index has been created to analyse the primary data. The secondary information was collected research articles, research projects, government websites, and online data sources like google scholar. Descriptive statistics, frequency tables, graphs, Likert scale, cross tabs, linear regression were used to analyse the data.

5. Analysis of Data

5.1. Effectiveness of Haritha Karma Sena Workers in the Selected Sample

This section of the study presents an objective examination of data collected to evaluate the effectiveness of Haritha Karma Sena in Wadakkanchery Municipality. This part assesses the effectiveness of waste collection services, staff responsiveness, punctuality, cleanliness improvements, and overall performance.

Table 1
Effectiveness of the Haritha Karma Sena

	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Total score	Mean score	Consolidated score
Efficiently gather garbage	80	44	9	0	0	133	4.4	4.02
Satisfaction in frequency of waste collection	45	76	3	2		126	4.2	
Responsiveness of workers	5	56	42	2	0	105	3.5	
Improvement in cleanliness of your area	80	40	12	0	0	132	4.4	
Effectiveness in communication	25	60	27	2	0	114	3.8	
Punctuality of workers	30	68	21	0	0	119	3.9	
Contribution to environment awareness by the workers to locality	40	48	27	2	0	117	3.9	
Handling different types of waste	55	60	9	2	0	126	4.2	
Reduction in waste after the presence of Haritha Karma sena worker	60	56	9	2	0	127	4.2	
Rate over all the performance of workers	60	60	9	0	0	129	4.3	
Cleanliness of your neighbourhood	20	64	30	0	0	114	3.8	
Responsiveness of workers to reported issues	20	64	30	0	0	114	3.8	
Behaviour of workers	40	56	21	2	0	119	3.9	
Total							52.3	

Source: Primary data

Table 1, results of the study reflect a generally high level of satisfaction with waste collection services, with many categories scoring better than 4.0. Key highlights include efficient garbage collection and significant increases in area cleanliness both with a mean score of 4.4, as well as excellent waste management and overall worker performance. However, there is a place for improvement, particularly in staff responses to concerns and reported complaints, which received the lowest score of 3.5. Communication efficacy and neighbourhood cleanliness both received lower ratings 3.8, indicating potential gaps in clarity and thoroughness. While workers' behaviour and timeliness received reasonably high ratings 3.9, minor improvements in these areas could boost satisfaction even further. Overall, focusing on greater communication and responsiveness may assist elevate.

Table 2
Index of the effectiveness of the Haritha Karma Sena

	Frequency	Percent
Low	17	56.7%
Medium	13	43.3%
Highly	0	0
	30	100

Source: Primary data

The Haritha Karma Sena's effectiveness assessment shows that the majority of participants 56.7% assessed its performance as low, while 43.3% judged it to be medium effective. Notably, none of the participants evaluated the training as highly effective. This distribution indicates that there may be limitations in the program's influence or implementation, resulting in low overall satisfaction or effectiveness. The lack of high ratings suggests that considerable modifications are required to improve the program's outcomes, such as refining techniques, enhancing involvement, or optimizing resource allocation to better fulfil the program's objectives.

5.2. Satisfaction level of the Haritha Karma Sena Workers

Haritha Karma Sena (HKS) workers are the backbone of Kerala's waste management system, playing a crucial role in maintaining cleanliness and promoting environmental sustainability. However, despite their significant contributions, they encounter numerous challenges that affect their efficiency and overall well-being. Identifying these challenges is essential for improving their working conditions, ensuring fair wages, and strengthening waste management policies to create a more effective

and sustainable system. Therefore, it is indeed to examine the satisfaction level of the HKS workers.

Table 3
Satisfaction level of Haritha karma sena

	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Total score	Mean score	Consolidated score
Job	70	56	6	0	0	132	4.4	3.638
Your current wage	0	36	51	8	0	95	3.16	
Your working hours	35	56	27	0	0	118	3.93	
Provision of leisure time	60	40	3	14	0	117	3.9	
Provision of leave	10	4	54	18	0	86	2.8	
Total							18.19	

Source: Primary data

Table 3 summarizes the survey findings on job-related satisfaction across multiple dimensions. Overall job satisfaction had the highest score, with a total of 132 and a mean score of 4.4, showing that employees are very satisfied with their jobs. Satisfaction with working hours (mean score of 3.93) and availability of leisure time (mean score of 3.9) also received positive feedback. However, present wage satisfaction is significantly lower, with a mean score of 3.16, indicating a need for compensation changes. The provision of leave obtained the lowest score, with a mean of 2.8, indicating a major room for improvement. The total score for all categories is 18.19, with an average mean suggesting moderate overall satisfaction. To improve overall happiness, addressing pay concerns and enhancing leave rules could be critical areas for change.

Table 4
Satisfaction Index

Low	5	16.7%
Medium	25	83.3%
Highly	0	0
	30	100%

Source: Primary data

A vast majority of participants i.e., 83.3% gave their level of satisfaction a medium rating, according to the satisfaction index, while a lesser percentage 16.7% gave it a

bad rating. No one who took part expressed a high degree of satisfaction. There is no indication of great pleasure, according to this distribution, even though the majority of participants regard the program to be moderately good. The lack of high satisfaction points to areas that could want improvement, such as particular participant issues being addressed or the program as a whole being improved to better fulfil expectations.

Table 5
Regression on Satisfaction Index

Model		Coefficients ^a			t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	2.133	.899		2.374	.026
	age of the Haritha karma sena	.048	.122	.077	.396	.696
	income of the Haritha karma sena	9.191E-006	.000	.265	1.477	.153
	education of the Haritha karma sena	-.239	.138	-.334	-1.736	.095
	economic status of the Haritha karma sena	.107	.259	.095	.414	.683
	religion of the Haritha karma sena	.041	.181	.055	.227	.823
a. Dependent Variable: index of the satisfaction Haritha karma sena						

Source: Primary data

Considering all p-values are greater than 0.05, the regression analysis shows that none of the independent variables—the Haritha Karma Sena (HKS) members' age, income, education, economic standing, or religion—significantly affect the satisfaction index. Economic status, age, and income all have weak but positive correlations with contentment, although these relationships are not statistically significant. Higher education may somewhat lower satisfaction; however, this is not conclusive. Education and satisfaction have a negative connection that approaches significance ($p = 0.095$). The influence of religion on satisfaction is minimal. All things considered, the model shows that these variables fall short of explaining variances in satisfaction, underscoring the necessity of investigating other variables that might more accurately represent the causes influencing satisfaction among HKS members.

5.3. Challenges faced by the Haritha Karma Sena Workers

However, despite of their significant contributions, they encounter numerous challenges that affect their efficiency and overall well-being. These challenges include financial instability, lack of adequate safety equipment, limited public cooperation, and logistical issues such as inefficient transportation and waste disposal facilities. Additionally, social stigma and irregular income further add to their struggles. This part focuses on analysing the various difficulties faced by HKS workers in Wadakkanchery Municipality through data-driven insights. Identifying these challenges is essential for improving their working conditions, ensuring fair wages, and strengthening waste management policies to create a more effective and sustainable system.

Table 6
Challenges faced by HKS

	Always	Most of the time	Some times	Rarely	Never	Total score	Mean score	Consolidated score
Any resistance from residents when encouraging them to segregated waste	0	0	45	28	1	74	2.4	2.922
supportive are local authority or municipalities in helping you resolve waste management issues	10	32	33	16	1	92	3.06	
People agree to pay for garbage collection services	25	48	30	4	1	108	3.6	
Transportation	5	8	15	16	14	58	1.9	
Storage of waste or recycling	60	64	6	0	0	130	4.3	
Insufficient income	5	36	33	12	3	89	2.9	
Behaviour of beneficiaries	10	28	24	16	5	83	2.7	
Disposal of waste is difficult task	5	24	15	20	8	72	2.4	
Facing health risks while handling waste	0	4	21	20	12	57	1.9	
Seasonal changes, like heavy rains, affect your waste collection	65	36	15	6	0	122	4.06	
Total							29.22	

Source: Primary data

Table 6 describes the problems and support available for trash management. The highest level of satisfaction is seen in waste storage or recycling, which received 130 points with a mean score of 4.3, showing strong effectiveness in managing this area. Seasonal variations, such as severe rains that impacted waste collection, also fared well, with a total score of 122 and a mean of 4.06, demonstrating resilience to weather-related issues. People who agreed to pay for waste collection services scored 108 with a mean score of 3.6, indicating a moderate willingness to pay. However, transportation and dealing with health concerns when handling trash were the most difficult, with both receiving the lowest mean score of 1.9. Waste disposal as a tough task, as well as resident reluctance to encouraging segregation, received a mean score of 2.4, indicating persistent challenges with waste management systems. Support from local governments or municipalities received a moderate mean score of 3.06, indicating space for improvement in collaboration. The overall consolidated score is 29.22, with an average mean indicating mixed levels of satisfaction. Improving transportation, health safety, and waste Disposal operations could boost overall satisfaction.

Table 7 - Challenges Index

	Frequency	Percent
Never	0	0
Sometimes	14	46.7
Almost	16	53.3
	30	100

Source: Primary data

Based on the challenges index, 53.3% of participants reported having difficulties “almost always,” despite 46.7% reporting having difficulties “sometimes.” None of the participants said they had any difficulties. According to this distribution, difficulties are a frequent and recurrent problem for the majority of participants, pointing to possible barriers in the planning or execution of the program. The frequency of common problems emphasizes the necessity of focused interventions to find and fix these problems, enhancing program effectiveness and participant satisfaction overall.

Table 8
Regression on the Challenges Index

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.085	.612		5.044	.000
	age of the Haritha karma sena	.037	.083	.085	.443	.662
	income of the Haritha karma sena	2.420E-006	.000	.101	.571	.573
	education of the Haritha karma sena	-.172	.094	-.349	-1.841	.078
	economic status of the Haritha karma sena	-.070	.176	-.090	-.398	.694
	religion of the Haritha karma sena	.132	.123	.254	1.071	.295
a. Dependent Variable: challenges of the Haritha karma sena index						

Source: Primary data

Considering all p-values are higher than 0.05, the regression analysis shows that none of the factors—age, income, education, economic standing, or religion of Haritha Karma Sena (HKS) members—significantly predict the difficulties they encounter. Although there are slight positive correlations between challenges and age and wealth, these interactions are insignificant. The association between economic status and economic status is somewhat negative, suggesting no discernible influence. Challenges are positively, but not significantly, impacted by religion. However, education shows a negative association and approaches significance ($p = 0.078$), indicating that, while not conclusive, higher education may somewhat lessen problems. All things considered, these results imply that the model falls short in explaining the differences in difficulties, underscoring the necessity of investigating other elements to gain a deeper comprehension of the factors that influence the difficulties encountered by HKS members.

1. Results & Discussion

The Haritha Karma Sena (HKS) initiative plays a crucial role in of Kerala's decentralized waste management system, seeking to promote sustainability, cleanliness, and environmental conservation. Haritha karma sena, founded by the Haritha Keralam Mission, is mostly made up of women workers who collect, segregate, and recycle waste together with local self-governing authorities. This initiative not only promotes

efficient garbage disposal but also creates job possibilities, particularly for women from economically poor families. Hence, the present study “A Study on Effectiveness of Haritha Karma Sena in Wadakkanchery Municipality” is under taken, with the following specific objectives

- To analyse the effectiveness of Haritha karma sena in wadakkanchery municipality
- To Identify the challenges faced by the Haritha karma sena workers.

The primary data collected from randomly selected 30 beneficiaries and 30 Haritha karma sena workers in Wadakkanchery municipality. The primary information has been included by using well-structured pre designed schedules. Various tables, charts, percentages, Likert scale, constructed for mean, index were used to analyze data.

- Workers expressed strong job satisfaction, with a mean score of 4.4, showing that they enjoy their work despite the hurdles.
- Satisfaction with working hours (mean score of 3.93) and availability of leisure time (mean score of 3.9) received favourable responses, indicating that workers found their workload manageable.
- The average wage satisfaction score is 3.16, suggesting unhappiness with existing salaries. This shows that increasing pay could greatly boost employee morale and satisfaction.
- The supply of leave obtained the lowest mean score of 2.8, indicating that employees are very unsatisfied with their leave alternatives. This identifies a significant area where policies must be modified in order to achieve better work-life balance.
- The Satisfaction Index 83.3% of employees reported being moderately satisfied with their jobs, 16.7% of respondents expressed low levels of satisfaction, and no respondents expressed high satisfaction.
- The absence of high satisfaction levels suggests large gaps in achieving worker expectations. To improve job happiness, wages should be addressed first, followed by improved leave provisions.
- All of the independent variables (age, income, education, economic status, or religion) had a significant impact on the satisfaction measure (all p-values > 0.05).
- The crosstabulation indicates that increased income correlates with higher satisfaction, with all members earning ¹ 11,000-14,000 reporting medium satisfaction. Lower-income groups (¹ 5,000-8,000) have the highest levels of

dissatisfaction, indicating financial strain may affect enjoyment. Wage increases could help lower-income members feel more satisfied.

- The survey results show strong family support (mean score 4.4) and moderate happiness with family time (3.7). However, income adequacy had a lower score (2.9), indicating financial concerns among members. Addressing money difficulties may increase overall family satisfaction while retaining strong family support.
- The data show that garbage storage and recycling are highly effective (mean score: 4.3), as is resistance to seasonal problems (4.06). However, substantial challenges include transportation and health concerns (both 1.9), as well as trash disposal issues (2.4). Improving transportation, health safety, and disposal methods may increase overall satisfaction with garbage management.
- Haritha Karma Sena members find Construction and Demolition (C&D) Waste the most challenging to manage, followed by E-Waste, Non-recyclable Plastics, and Medical and Hazardous Waste. These waste types require specialized disposal methods, highlighting the need for better infrastructure and training in waste management.
- Haritha Karma Sena members identified transportation issues and lack of public cooperation as major challenges in waste management. Improving transportation infrastructure and raising public awareness about proper waste disposal could significantly ease their workload and enhance efficiency in waste handling.
- Haritha Karma Sena follows a structured recycling process where waste is segregated and sent to the Kumbhlangad MCF. Plastic waste is shredded and sold for reuse, while food waste is converted into organic compost. This system promotes sustainable waste management and reduces environmental impact.

2. Suggestions

- **Suggestions from the respondents to enhance the effectiveness of Haritha karma sena workers**

A major concern is the reduction of service fees, suggesting that some beneficiaries feel the cost of waste collection could be more affordable. Additionally, there is a demand for more awareness programs on waste management, indicating the need for better public education on proper disposal practices. Some respondents also emphasized the importance of better cooperation from workers towards households, which could improve service quality and community relations. Hygiene concerns were raised, as workers often lack essential protective gear such as gloves and masks, which could impact both their health and work efficiency. The issue of waste dumping was also

highlighted, where collected household waste is temporarily dumped before being transported later, raising concerns about cleanliness and environmental impact. Moreover, the lack of proper vehicles and timely waste collection was mentioned, pointing to the need for better infrastructure and punctuality in waste management operations. Addressing these concerns through improved policies, better equipment, and enhanced community engagement could significantly boost the overall effectiveness of Haritha Karma Sena workers.

- **Suggestion in the waste management system to make job easier**

The responses from Haritha Karma Sena members regarding improvements in the current waste management system indicate that better transportation facilities and increased public cooperation are the key areas that need attention. A significant portion of respondents, 43.3%, emphasized the need for greater cooperation from the public, suggesting that improper waste disposal and lack of awareness among residents create additional challenges for workers. However, the majority of workers identified transportation as the most pressing issue, highlighting difficulties in waste collection, transfer, and disposal due to inadequate or inefficient transport systems. These findings suggest that enhancing transportation infrastructure and implementing awareness campaigns to encourage public participation could significantly ease the workload of waste management workers and improve overall efficiency in waste handling.

Conclusion

The study on the effectiveness of Haritha Karma Sena (HKS) in Wadakkanchery Municipality highlights the program's crucial role in decentralized waste management, environmental sustainability, and women's empowerment. While beneficiaries generally appreciate HKS services, concerns about responsiveness, communication, and affordability persist. The study reveals that HKS workers, predominantly women from marginalized and low-income backgrounds, face significant challenges, including low wages, inadequate leave provisions, lack of safety equipment, and transportation issues. Older and less-educated workers report higher work-related difficulties, and managing certain waste types like construction debris and hazardous materials remains a challenge. Despite these hurdles, HKS has a well-structured waste recycling process that promotes sustainability. Enhancing transportation, increasing public cooperation, improving worker safety, and addressing wage concerns are essential steps to improving efficiency and job satisfaction, ensuring a more sustainable and effective waste management system.

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Evaluation of the Financial Literacy Landscape in the Eastern Region of India

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Abstract

Financial literacy is crucial for people's welfare and wellbeing, enabling them to make informed decisions about their financial resources. Financial literacy promotes financial inclusion, reduces poverty, and contributes to economic growth and development. Financial literacy is a combination of financial attitude, financial behaviour and financial knowledge as proposed by OECD (2012). Overall financial literacy score is obtained by adding together, the scores of these three components (OECD/INFE 2015). The present study examined the financial literacy scenario in the East Zone of India. The study reveals that while financial attitude is strong across all zones in India, there is a significant gap in financial behavior and knowledge. Only 27 percent of the population meets the overall financial literacy threshold. Financial literacy in the eastern region of India is notably low, with only West Bengal (29 percent) exceeding the national average of 27 percent. All other states, including Bihar, Odisha, and Sikkim, fall significantly below, underscoring a critical need for region-specific financial education and awareness initiatives. This highlights the urgent need for targeted financial education and behavior-focused interventions to improve overall financial literacy in the country.

Key Words: Financial literacy, financial attitude, financial behavior, financial knowledge, financial inclusion

1. Introduction

Financial literacy is essential for people's welfare and wellbeing, enabling them to make informed decisions about their financial resources. Financial literacy is essential

for individuals, families, and communities to achieve financial stability, security, and prosperity. It promotes financial inclusion, reduces poverty, and contributes to economic growth and development. Financial literacy, as defined by the OECD, encompasses a combination of knowledge, attitude, and behavior. Overall financial literacy score is obtained by adding together, the scores of these three components (OECD/INFE 2015). This multi-dimensional approach allows for a thorough evaluation of an individual's ability to make prudent money management choices, ultimately contributing to improved financial well-being.

Financial literacy encompasses three key components that collectively determine an individual's overall financial capability. Financial Knowledge refers to the understanding of fundamental financial concepts, including savings accounts, compound interest, and investments, which provides the foundation for informed decision-making. Financial Attitude encompasses an individual's beliefs and feelings towards money management and financial planning, influencing their willingness to engage in financial activities. Financial Behavior involves the actions taken with money, such as budgeting, saving, investing, and managing debt, which ultimately impact financial outcomes. By assessing these components, financial literacy can be measured, providing valuable insights into an individual's capacity to manage finances effectively and make informed financial decisions.

2. Significance of the Study

Financial competence plays a vital role in equipping people with the knowledge and expertise necessary to make informed money management choices. The ability to navigate complex financial concepts is essential in today's economic landscape. Promoting financial literacy enables individuals to manage financial risks more effectively, **sound investment decisions** and foster overall growth and development of the economy. Notably, among the various zones in India, the East Zone exhibits the lowest financial literacy. At this juncture, it is relevant to analyze financial literacy levels in various states in the eastern zone. The present study intends to examine the financial literacy scenario in the East Zone of India. The study can help identify gaps in financial literacy levels in various states in the eastern zone, enabling targeted interventions. By highlighting areas of improvement, the study can contribute to promoting financial inclusion in the eastern zone, ultimately driving economic growth and development.

3. Review of Literature

Previous studies indicate that financial literacy is a significant concern in India, with various studies highlighting Insufficient financial literacy within diverse population segments (Dube & Asthana, 2017). Specifically, Uttar Pradesh lags behind national

and zonal averages (Dube & Asthana, 2017). Determinants of financial literacy encompass demographic and socio-economic elements such as gender, marital status, age, religion, education, occupation, income, and family system, as well as internet accessibility (Kiliyanni & Sivaraman, 2016; Dash & Ranjan, 2023; Singh & Singh, 2023). Financial literacy significantly influences mutual fund investment, credit use, handling debt, and investment planning, and is crucial for empowering women through access to credit (Dash & Ranjan, 2023; Semmler, 2016). However, challenges persist, including low financial literacy among scheduled tribes, poverty's negative impact on financial literacy, limited control over loans and investments among women, and regional disparities in financial literacy, with states like Assam, Bihar, Manipur, Nagaland, and Uttar Pradesh lagging behind (Singh & Singh, 2023; Semmler, 2016; Dash & Ranjan, 2023).

4. Objectives of the Study

- To compare the financial literacy levels in the East zone with other zones in India,
- To evaluate and compare financial literacy levels among the Eastern states in India.

5. Data Source and Methods

This study is based on secondary data sourced from the NCFE (National Centre for Financial Education) Financial Literacy and Inclusion Survey conducted in 2019. The study aims to assess the financial literacy scenario in Eastern zone of India by examining three key components: financial attitude, financial behavior, and financial knowledge. These components are widely recognized as the core pillars of financial literacy, as defined by international standards formulated by the OECD. Eastern region of India includes the states and union territories of Andaman & Nicobar Islands, Bihar, Jharkhand, Odisha, Sikkim, and West Bengal. The data was analyzed using a combination of descriptive statistics (table and percentage) and visual representation (bar diagram) to facilitate a clear and comprehensive understanding of the financial literacy level in Eastern India.

6. Discussion of the Analysis

Financial literacy is commonly understood as a combination of three core components: financial attitude, financial behavior, and financial knowledge. Each of these components serves a distinct yet interrelated function in determining an individual's overall financial well-being.

Financial attitude reflects a person's mindset and approach toward money—specifically how they view spending, saving, and financial planning. A positive financial

attitude fosters responsible money management and future-oriented decision-making. Financial behavior, on the other hand, refers to the practical actions individuals take in managing their finances. It includes maintaining a household budget, making cautious spending decisions, setting aside regular savings, planning for long-term financial goals, observing personal financial matters, paying bills on time, and understanding affordability. Lastly, financial knowledge encompasses an individual's awareness about financial products and concepts such as interest rates, risk and return, inflation, and diversification.

For each component, a threshold score has been defined to indicate adequate financial capability a score of 3 or more out of 5 for financial attitude, 6 or more out of 9 for financial behavior, and 6 or more out of 8 for financial knowledge. Additionally, an individual is considered financially literate if they achieve a total score of 15 or more out of a maximum of 22 points.

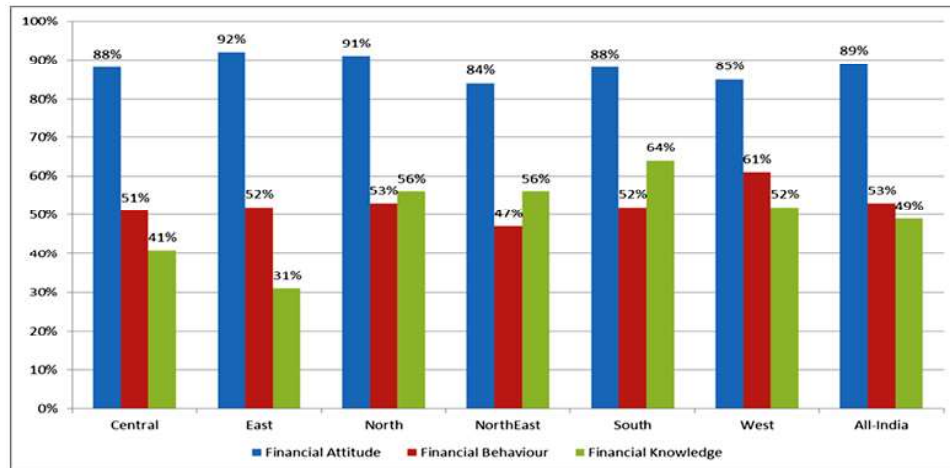
6.1. A Comparative Study of Financial Literacy across Indian Zones

The table-1 presents data on financial literacy across various zones in India, evaluating three key components: financial attitude, financial behavior, and financial knowledge. Across all zones, financial attitude scores are relatively high, with percentages ranging from 84 percent in the Northeast to 92 percent in the East, suggesting that most individuals have a positive approach toward financial matters. However, financial behavior scores show moderate performance, with the lowest in the Northeast at 47 percent and the highest in the West at 61 percent, indicating a noticeable gap between attitude and actual financial practices. In terms of financial knowledge, the variation is wider. The South leads with 64 percent of individuals meeting the knowledge threshold, while the East trails behind at just 31 percent. This highlights a significant lack of financial understanding in certain regions.

Table 1: Financial Literacy in Different Zones in India (in percentage)

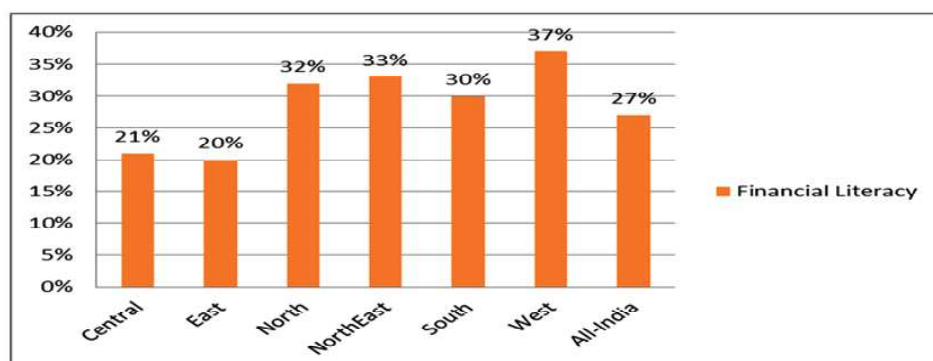
Different Zones in India	Financial Attitude (≥ 3)	Financial Behaviour (≥ 6)	Financial Knowledge (≥ 6)	Financial Literacy (≥ 15)
Central	88	51	41	21
East	92	52	31	20
North	91	53	56	32
Northeast	84	47	56	33
South	88	52	64	30
West	85	61	52	37
All-India	89	53	49	27
Maximum Score	5 points	9 points	8 points	22 points

Source: NCFE Financial Literacy and Inclusion Survey 2019

Figure: 1 Components of Financially Literacy in Different Zones of India

Source: NCFE Financial Literacy and Inclusion Survey 2019

The figure 2 depicts overall financial literacy across various zones in India. When combining all three components, the financial literacy scores reveal that only a small proportion of the population meets the overall literacy threshold. The West zone performs the best, with 37 percent of its population considered financially literate, followed by the Northeast at 33 percent and the North at 32 percent. In contrast, the Central and East zones have the lowest literacy rates at 21 percent and 20 percent, respectively. The national average, or All-India score, stands at 27 percent, emphasizing the need for improved financial education and awareness programs across the country.

Figure: 2 Financial Literacy in Different Zones in India

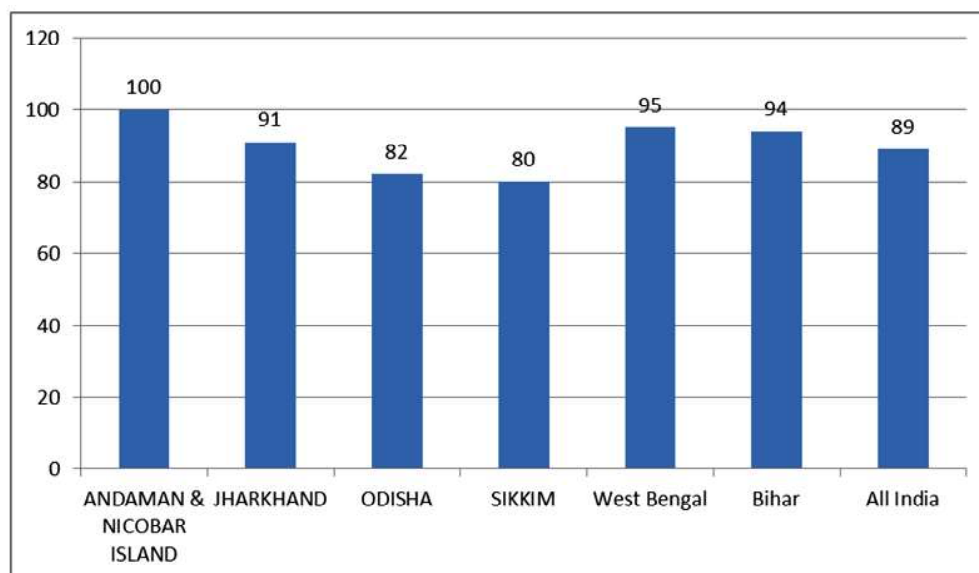
Source: NCFE Financial Literacy and Inclusion Survey 2019

6.2. An Evaluation of Financial Literacy in Eastern States of India

6.2.1 Financial Attitude in Eastern States of India

Among the eastern region states, Andaman and Nicobar exhibited the highest financial attitude, achieving a perfect score of 100 percent. This was closely followed by West Bengal at 95 percent, Bihar at 94 percent and Jharkhand at 91 percent. Odisha and Sikkim recorded the lowest scores within the region, at 82 percent and 80 percent respectively. Overall, the eastern states demonstrated a stronger financial attitude compared to the national average of 89 percent, with the exception of Odisha and Sikkim, which fell below this benchmark. These findings indicate that most eastern states have a positive approach toward financial matters, highlighting regional strengths in financial awareness and behavior.

Figure 3 Financial Attitude in Eastern States of India



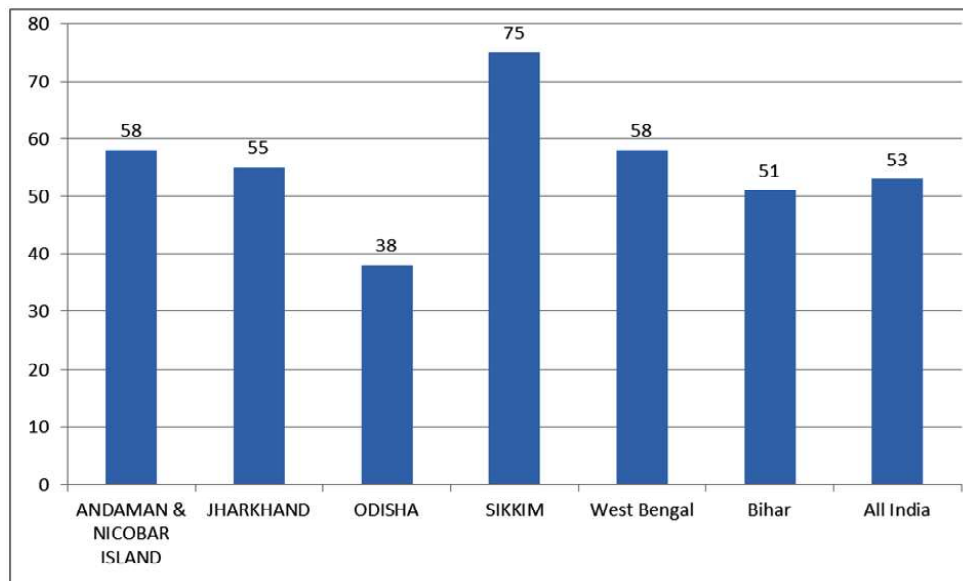
Source: NCFE Financial Literacy and Inclusion Survey 2019

6.2.2 Financial Behavior in Eastern States of India

The Eastern region exhibits encouraging trends in financial behavior, with several states performing at or above the national average. Sikkim leads the region with an impressive financial behavior score of 75 percent, indicating strong financial literacy and responsible practices. Following Sikkim, Andaman and Nicobar Islands and West Bengal recorded commendable scores of 58 percent, reflecting positive financial engagement among their populations. Jharkhand and Bihar also demonstrated moderate

financial behavior scores of 55 percent and 51 percent, respectively, suggesting steady progress in financial awareness. However, Odisha scored the lowest in the region with 38 percent, highlighting an area that could benefit from targeted financial education and inclusion efforts. Overall, the majority of the Eastern states show promising financial behavior levels, which align closely with or surpass the all-India average, signaling a positive trajectory for financial empowerment in the region.

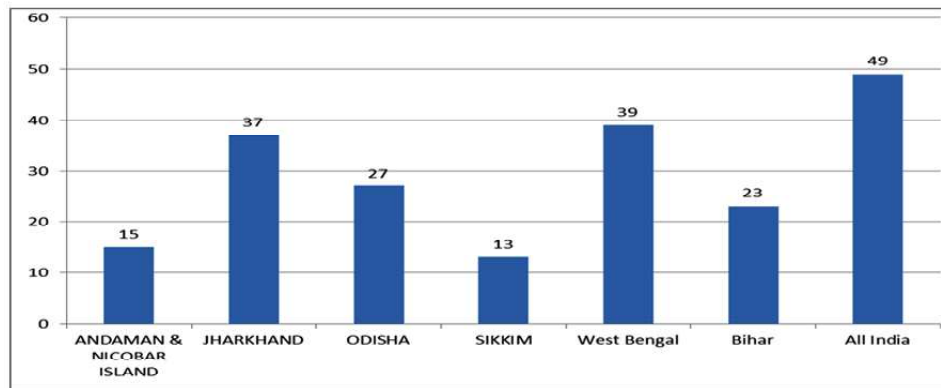
Figure: 3 Financial Behavior in Eastern States of India



Source: NCFE Financial Literacy and Inclusion Survey 2019

6.2.3 Financial Knowledge in Eastern States of India

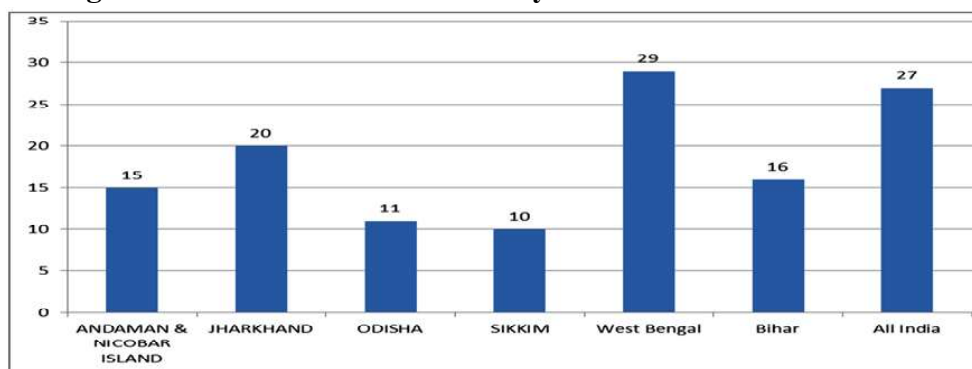
Financial knowledge levels across the eastern region of India remain significantly below the national average of 49 percent. Among the states, West Bengal recorded the highest financial literacy rate at 39 percent, followed closely by Jharkhand at 37 percent. However, both still fall short of the national benchmark. Odisha (27 percent) and Bihar (23 percent) show moderate awareness, while the union territory of Andaman & Nicobar Islands reported a low 15 percent. Sikkim registered the lowest financial knowledge in the region at just 13 percent. These figures highlight a pressing need for targeted financial education initiatives in the eastern states to bridge the literacy gap and promote informed financial decision-making.

Figure: 4 Financial Knowledge in Eastern States of India

Source: NCFE Financial Literacy and Inclusion Survey 2019

6.2.4 Overall Financial Literacy across Eastern States of India

Financial literacy encompasses three key components: financial attitude, financial behavior, and financial knowledge. It is assessed by combining scores across these areas to provide an overall measure. In the eastern region of India, West Bengal leads with the highest financial literacy rate at 29 percent, slightly surpassing the national average of 27 percent. Other states in the region lag behind: Jharkhand at 20 percent, Bihar at 16 percent, Andaman & Nicobar Islands at 15 percent, and Odisha at 11 percent. Sikkim ranks the lowest, with a financial literacy rate of just 10 percent. With the exception of West Bengal, all eastern states fall below the national average, highlighting the urgent need for targeted financial education and awareness programs across the region.

Figure : 5 Overall Financial Literacy across Eastern States of India

Source: NCFE Financial Literacy and Inclusion Survey 2019

6.3.1 Financial Literacy in Eastern India: Trends and Improvements (2014–2019)

Based on the financial literacy data from 2014 to 2019 for the Eastern states of India, there has been a noticeable improvement across all regions, though the levels still vary widely. West Bengal had the highest financial literacy rate among the listed Eastern states in both years, increasing significantly from 21 percent in 2014 to 29 percent in 2019, which is notably above the national average. Bihar showed the most dramatic improvement, doubling its financial literacy rate from 8 percent to 16 percent, reflecting strong progress, though still below the national figure. Jharkhand also made considerable gains, rising from 15 percent to 20 percent, now matching the 2014 national average.

Odisha and Sikkim both started at lower levels 9 percent and 8 percent respectively in 2014 and made modest progress to 11 percent and 10 percent in 2019. These increases, though positive, remain among the lowest in the region and well below the national average. Andaman & Nicobar Islands showed only a slight increase from 14 percent to 15 percent, indicating minimal change over the five-year period.

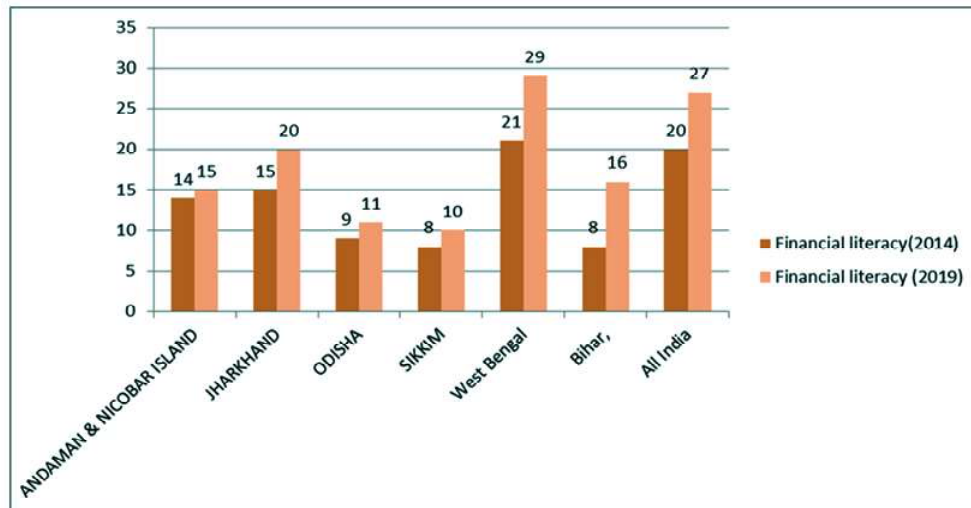
At the national level, India's overall financial literacy rose from 20 percent in 2014 to 27 percent in 2019, marking a significant 7-percentage point increase. While some Eastern states such as West Bengal and Jharkhand are approaching or exceeding this average, others like Odisha, Sikkim, and Andaman & Nicobar continue to lag, highlighting regional disparities that may be influenced by differences in education, outreach, infrastructure, or socio-economic conditions.

Table -1 Financial Literacy in Eastern States of India: A Comparative Analysis (2014-2019)

Eastern States of India	Financial Literacy 2014 (in percentage)	Financial Literacy 2019 (in percentage)
Andaman & Nicobar Island	14	15
Jharkhand	15	20
Odisha	9	11
Sikkim	8	10
West Bengal	21	29
Bihar,	8	16
All India	20	27

Source: NCFE Financial Literacy and Inclusion Survey 2019

Figure: 6 Financial Literacy in Eastern States of India: A Comparative Analysis (2014–2019)



Source: NCFE Financial Literacy and Inclusion Survey 2019

Conclusion

Financial literacy equips individuals to adapt to rapid changes in the financial system and promotes financial well-being; particularly for vulnerable sections of society. The study reveals that while financial attitude is strong across all zones in India, there is a significant gap in financial behavior and knowledge. Only 27 percent of the population meets the overall financial literacy threshold. Financial literacy in the eastern region of India is notably low, with only West Bengal (29 percent) exceeding the national average of 27 percent. All other states, including Bihar, Odisha, and Sikkim, fall significantly below, underscoring a critical need for region-specific financial awareness initiatives. This highlights the need for targeted financial training and behavior-focused interventions to increase financial literacy in the country. Between 2014 and 2019, financial literacy in Eastern India improved across all states, with West Bengal leading and exceeding the national average. Bihar showed the most significant growth, while Odisha, Sikkim, and Andaman & Nicobar Islands remained well below national levels despite modest gains. These trends highlight persistent regional disparities and the need for focused financial education efforts tailored to lagging states.

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Digital Marketing Metamorphosis: A Dual-Sector Study of Kerala's Banking Institutions in the Digital Age

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Abstract

In a day and age when digital transformation is revolutionizing service delivery across sectors, the banking industry too has seen tremendous metamorphosis, especially when it comes to marketing. In an objective to analyze the workings of digital marketing in Kerala's banking space, this study had conducted a comparative analysis among public and private sector banks. Based on customer surveys and employee response data, the research compares digital literacy levels, usage patterns, the indices of customer satisfaction, and technological adoption, including the use of artificial intelligence and campaign tactics. Employing descriptive statistics, correlation matrices, and regression models, the research indicated that the private banks have shown higher digital maturity with higher frequency usage of campaigns and partial usage of AI-based marketing. On the other hand, the public sector banks reflect well-defined campaign routines but delayed technological adoption. Despite these, age and digital literacy level indicated little correlation with customer satisfaction, which goes on to say that the success of the strategy depends more on the quality of the engagement rather than demographic qualities. Employee data highlighted variations in campaign frequencies, departmental orientation, and perception of the marketing efforts. Regression analysis indicated weak correlations between age and satisfaction across the two sectors, reinforcing the necessity for fine-tuning customer segmentation and customization. The findings confirm that the two sectors have a need to re-tune their digital strategy—private banks through inclusive

reach and the public banks through enabling digital capacities. This paper concludes with actionable recommendations for the customization of digital marketing practices with a view to enforcing competitive advantage, customer experience, and operational efficiency in the banking space in Kerala.

Keywords: Digital Marketing, Public Sector Banks, Private Sector Banks, Customer Satisfaction, Kerala Banking, Regression Analysis, Digital Literacy, Marketing Campaigns, Comparative Study, AI in Banking

Introduction

1.1 Background of the Study

The evolution of banking has experienced significant shifts, especially with the advent of digital technologies that have revolutionized customer experiences and operational practices. Traditionally, banking services were centralized in physical branches, with limited access to customers who had to visit these establishments for any form of transaction. However, the introduction of digital banking in the late 20th century marked a substantial transition, allowing financial services to reach a broader customer base through online and mobile platforms (Dapp et al., 2024). This transformation accelerated with the rise of the internet and mobile technology, which facilitated the growth of online banking, automated teller machines (ATMs), and mobile banking apps, all of which provided more convenient, 24/7 access to banking services. In Kerala, known for its high literacy rates and rapid adoption of digital tools, the banking landscape has significantly evolved, with both public and private banks embracing digital channels for offering banking services (Laxman, 2018). The state's diverse population, coupled with its progressive approach to technology, presents an ideal context for studying the dual-sector banking landscape, where both public and private sector institutions are integrating technology to meet customer demands while navigating challenges such as cybersecurity, digital literacy, and infrastructural limitations (Joju & Manoj, 2019).

1.2 Digital Marketing in the Banking Sector

Digital marketing has become a mainstream function in the banking industry, allowing enhanced customer interaction via social media, SEO, email, and AI-based platforms. In India, the growth parallels the drive for financial inclusion and internet access. While private banks have taken the lead in digital innovation by embracing AI and chatbots, public banks are slowly coming onboard driven by structural issues. In Kerala, which has a high literacy in the digital frontier, the two sectors leverage digital marketing for personalizing, customer interaction, and loyalty building, with the present study examining the perceived effectiveness (Santhosh & Aithal, 2024).

1.3 Indian Banking Landscape: Public vs. Private Sector

India’s banking system falls into the two camps of the public sector banks (PSBs), inclusion-focused but bureaucratically challenged, and the private sector banks, with their tech-driven efficiency and innovation (Kumar et al., 2024). While PSBs reach rural areas and embrace digital tools gradually, the urban areas are controlled by nimble, customer-focused services offered by the private banks. In Kerala, these distinctions can be seen particularly well, and this research investigates how these institutional variations organize digital marketing efforts and customer interaction results.

Table 1: Summary of Challenges Faced by Public Banks

Challenge Category	Examples/Details
Technological Limitations	Legacy IT infrastructure, limited CRM integration
Regulatory Barriers	Centralized approvals, compliance delays
Skill Gaps	Low digital marketing expertise, limited training
Low Campaign Interactivity	Static content, minimal personalization
Resource Constraints	Limited budgets for innovation and tools

Table 1 summarizes core barriers limiting public banks’ digital marketing, including outdated technology, rigid regulations, low staff expertise, unengaging content, and insufficient funding for innovation.

2. Statement of the Problem

Even as digital marketing gained wide usage in the global banking sector, profound imbalances have persisted between the public and private sector banks in Kerala with regard to implementing strategy, engaging with customers, and integrating technology. Private banks have been more proactive in adopting innovative digital technologies including artificial intelligence, predictive analytics, and multichannel marketing platforms, making it possible for them to provide highly customized and sensitive customer experiences. However, public sector banks face institutional resistance, infrastructural constraints, and resource bottlenecks, which impair the efficacy and scalability of their digital marketing. Further, whereas enhanced digital literacy and service expectations among customers in both sectors have become a given, the level of customer satisfaction and usage indicates a possible inadequacy in current digital marketing approaches to serve customers’ current needs. In addition, public sector banks lack the use of a unifying measurement framework that would be used in measuring the success of digital marketing programs. All these gaps leave key questions open as regards the comparative efficacy of digital marketing efforts in promoting enhanced customer satisfaction, loyalty,

and retention across the dual-sector Kerala banking system. Solving this issue necessitates a detailed, data-driven analysis of perspectives from the customer as well as the employees in ascertaining how digital marketing can be maximized for enhanced impacts across the two sectors.

3. Research Objectives

The purpose of this study is to analyze and upgrade digital marketing efforts in Kerala's public and private sectors. For this purpose, the objectives are:

1. Identify and categorize digital marketing tools employed by both industries, covering social media, SEO, mobile applications, and artificial intelligence.
2. Evaluate customer beliefs concerning the usefulness, satisfaction, usage behavior, and adoption based on models such as TAM.
3. Contrast public and private banks' digital preparedness and execution performance in terms of campaign frequency and AI take-up.
4. Analyze significant barriers inhibiting public sector uptake, including technological, organizational, and infrastructural barriers.
5. Provide practical, industry-specific suggestions for enhancing reach, innovation, and marketing efficacy.

4. Research Questions

The research answers the following central questions in order to identify digital marketing practices in Kerala's banking industry:

1. Which digital marketing methods are routinely employed by public as well as private banks?
2. How effective are these approaches in affecting customer satisfaction, loyalty, and retention?
3. What barriers hinder effective implementation, particularly in public sector banks?
3. In what ways can digital marketing be maximized for increased customer experience and competitiveness in both industries?

5. Scope and Limitations

This research is geographically limited to the Kerala state, which is one of the highest digital literacy and technology adoption regions, offering a proper backdrop for studying the digital marketing methodologies of public and private sector banks (Ruby et al., 2024). Its universe includes a dual focus—employees and customers—across

chosen public and private banks, allowing for a detailed analysis of the implementation of strategy, customer satisfaction, and organizational preparedness. Its research mainly concentrates on important dimensions as the frequency of digital campaigns, adoption of AI, digital literacy, usage behavior, and digital service satisfaction. Yet, the study suffers the limitations of sample magnitude, regional generalizability, and access to proprietary bank performance data. Its data gathering focuses on selective urban and semi-urban counterparts, which might not capture the rural digital banking behavior well, especially in the public sector. Further, as much as the analysis depends on self-reported perception among the employees and the clients, subjective bias seems possible. In spite of these limitations, the research adds significant insights into the changing digital marketing scenario across Kerala's banking space and provides direction for future longitudinal as well as cross-region-focused research.

6. Literature Review

Literature on digital banking marketing points to a revolutionary change driven by technology, changing customer expectations, and heightened competition. Research underscores the increasing use of mobile apps, social media, CRM software, and artificial intelligence in redefining the outreach and interaction of banking, with identifiable variations in the adoption by public and private sector banks. Aleskerova, Marunych, and Kachur (2023) highlighted the transition from operational to strategic, customer-focused banking marketing, with the use of segmentation, personalization, and communication approaches playing a significant role in the success of institutions. In the same vein, Kozhushko (2023) determined that digitalization, through the use of SEO, mobile marketing, and social media, transformed marketing concepts and diminished the use of physical branches. Joju, Vasantha, and Manoj (2017) observed that the banking scenario in Kerala underwent a dramatic transformation with the use of e-CRM adoption, particularly among older private sector banks seeking digital pertinence. Krishnan and Sheeja (2020), in a study on Kerala's Palakkad district, asserted that digital banking platforms increased convenience and decreased the need for physical visits, although some service constraints persisted. Kundu and Banerjee (2022) found that Indian private banks were more efficiently operational, but public banks excelled in policy implementation, particularly in socio-economic outreach. In the same way, Balaji and Kumar (2016) identified that the performance in the profitability and efficiency indicators was stronger in the case of private banks, as opposed to public banks, with a demand for a restructuring strategy in the public sector. Promotion techniques differ by sectors. Gupta and Mittal (2008) identified the use of customer-focused and innovative approaches in the case of private banks, with public banks using conventional methods. Sharma and Chowhan (2013), in a study on the car loan marketing, identified

the resistance among officers in promoting such a product despite favorable risk ratios, with the case for the alignment with an internal strategy. Facebook and other social media sites have been noted as significant vehicles in the use of social CRM. Alavi (2016) highlighted their increased application for retaining a clientele in the emerging economies. Mustaphi (2020) highlighted the importance of digital interaction as a way of engaging with the brand, with the customer dependant on word of mouth more than conventional advertisement. Finally, Kahlon and Mayekar (2016) warned against the over-prioritizing of lead generation at the cost of customer retention despite the findings that retaining current customers were far more cost-effective.

6.1 Research Gaps

In spite of increasing research examining digital marketing in banking, important gaps exist, especially comparing public and private banking sectors in regional settings such as Kerala. Research tends to be centered on either the financial performance or adoption of technology in a unilateral way, ignoring the impact that digital marketing efforts have on customer participation and loyalty across sectors. There is a lack of empirical evidence with both customer and managerial viewpoints that could be used to test the performance of particular digital tools. This research fills the gaps by presenting a dual-sector stakeholder analysis, providing a more detailed view of the impact digital marketing plays in defining contemporary banking experiences.

Table 2: Identified Research Gaps in the Study

Area	Gap Identified
Regional Focus	Lack of Kerala-specific studies on digital marketing in banking
Sector Comparison	Limited comparative analysis between public and private banks in the region
Post-COVID Behavior	Scarce research on shifts in digital banking habits after the pandemic
CRM Implementation	Few studies examining CRM usage variations between bank types
Consumer Experience	Inadequate insights into personalized digital engagement from the customer's view
Technological Readiness Analysis	Little work on internal readiness or barriers faced by public sector banks
Digital Literacy Impact	No in-depth evaluation of how digital literacy influences marketing effectiveness

Table 2 enumerates major research gaps in Kerala's banking industry in digital marketing with no region-specific, post-pandemic, and comparative studies, as well as with limited understanding pertaining to the adoption of CRM, customer experience, technology readiness, and the impact of digital literacy on marketing efficacy.

7. Theoretical Framework

A strong theoretical framework is necessary to provide the analytical foundation for this study with conceptual coherence as well as a structured framework through which findings can be interpreted. Based on an integrated framework derived from three foundational theories—the Technology Acceptance Model (TAM), the Diffusion of Innovations Theory, and the Customer Relationship Management (CRM) Framework—each model builds on the others in the explanation of the different facets of digital transformation in marketing in the banking industry, especially a comparison between the public and the private sectors in Kerala. Backed by Davis (1989), the Technology Acceptance Model explains how users end up accepting and using technology. According to the model, the antecedents of use are based on two core beliefs: the users' beliefs concerning the usefulness of the system and the ease with which they can use the system. In the context of banking, TAM facilitates the analysis of how the customer reacts to digital marketing resources such as mobile banking applications, the use of chatbots, and the use of service platforms. It further facilitates the analysis of why some banks, especially those in the public sector, experience resistance in the adaptation of new marketing technology at the individual level as a result of resistance by employees or insufficient digital learning.

The Theory of the Diffusion of Innovations (DoI) (Orr, 2003), develops a macro-level explanation for the pace with which new knowledge and technology get absorbed in social systems. Specifically, in the context of analyzing the reasons why Kerala's private sector banks lead the adoption curve for digital marketing, followed by slower adoption by public sector banks. DoI proposes that dimensions such as organizational culture, leadership vision, risk-taking, and channels play a significant role in determining innovation diffusion.

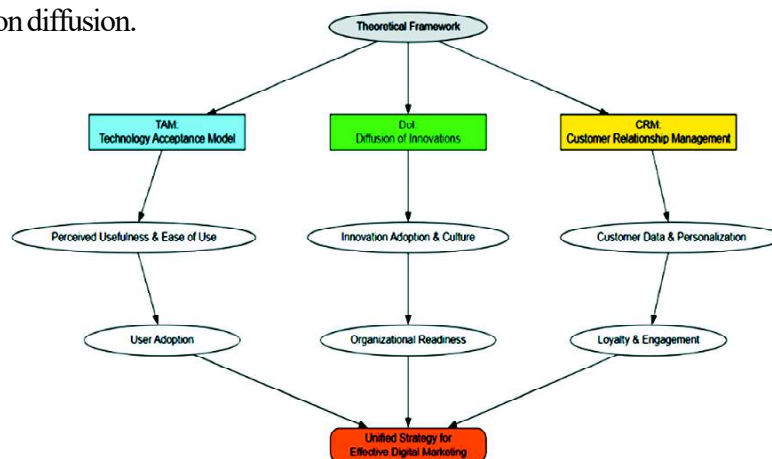


Figure 1: Theoretical Framework for Digital Marketing in Kerala's Banking Sector

Figure 1 provides a consolidated theoretical model using TAM, DoI, and CRM together with a focus on digital marketing adoption in the banking industry in Kerala. It emphasizes user adoption, organizational preparedness, and customer relationship approaches all focusing on enabling effective digital marketing in both public and private banks. Private banks with more flat organizational structures and higher operational freedom are generally more adaptable to changes in the marketplace and online trends, whereas public banks are bogged down by regulatory rules and administrative lassitude. Customer Relationship Management (CRM) Framework forms the third pedestal with the strategic importance being accorded by customer data, interaction, and satisfaction in the efficacy of digital marketing. With the capacity for banks to derive insights into customer behavior, personalize the marketing message, and nurture loyalty by communicating with the right messages, a CRM system facilitates the same. This framework assumes importance in the analysis of how banks leverage the use of digital marketing not merely for outreach but for long-term building relationships and retaining clients as well (Winer, 2001). In Kerala, as consumers are found to be highly responsive to customized digital content, the efficacy of CRM-driven marketing becomes a determining point of differentiation among public and private banks. Effectively bringing the three theoretical frameworks together, the research adopts a holistic strategy in analyzing digital marketing metamorphosis among Kerala's banking industry. TAM describes the micro-level adoption behavior for technology, DoI encapsulates the institutional preparedness and the innovation lifecycle, and the CRM bridges the gap between digital marketing tactics and customer-focused performance. Each model together leads the research design, data analysis, and policy suggestions.

8. Methodology

8.1 Research Design

It adopts a comparative-descriptive research design with a mixed-methods design to analyze digital marketing practices in Kerala's public and private sector banks. The comparative component compares sectoral differences in adoption, implementation, and customer interaction, whereas the descriptive component analyzes patterns and approaches without manipulating variables. Quantitative information is collected using structured questionnaires by way of customer and employee feedback, measuring digital literacy, frequency of campaigns, AI application, and customer satisfaction. Open-ended comments and observation of the campaigns provide qualitative evidence. Secondary information, including industry journals and bank reports, complements the analysis. Statistical methods and visualizations such as correlation matrices and regression plots aid in interpreting the data, providing a full picture of digital marketing transformation in Kerala's banking system.

8.2 Population and Sampling

This research focuses on two significant stakeholder voices across Kerala's banking industry: customers and employees at public and private banks. Customers were chosen based on active use among urban and semi-urban digital banking services to ascertain digital literacy and demographic variance. Employees in marketing, IT, and operations departments were included so that internal viewpoints could be considered based on digital strategy. A stratified random sampling procedure was employed, first by sector and then by job function, that ensured representation across age, sex, location, and job function. A sample consisting of around 100–150 customers and 20–30 employees per sector were taken. Informed consent and confidentiality were practiced as per ethical standards, providing results that are reliable and generalizable for Kerala's banking industry.

Table 3: Customer Demographics in Private and Public Banks

Demographic Feature	Private Bank	Public Bank
Gender Distribution	Female: 162 (54%), Male: 138 (46%)	Female: 168 (56%), Male: 132 (44%)
Age Group Distribution	18-30: 84 (28%), 31-45: 102 (34%), 46-60: 78 (26%), 60+: 36 (12%)	18-30: 90 (30%), 31-45: 96 (32%), 46-60: 82 (28%), 60+: 30 (10%)
Digital Literacy Levels	High: 186 (62%), Moderate: 90 (30%), Low: 24 (8%)	High: 158 (53%), Moderate: 96 (32%), Low: 46 (15%)
Occupation	Salaried: 120 (40%), Self-employed: 66 (22%), Students: 54 (18%), Retired/Unemployed: 60 (20%)	Salaried: 130 (43%), Self-employed: 50 (17%), Students: 60 (20%), Retired/Unemployed: 46 (15%)

Table 3 is a comparative analysis by customer demographics between the public and private sectors, including the distribution by gender, age groups, level of digital literacy, and occupation. It indicates the proportionate male and female customer base, the age groups among them, and the differential level of digital literacy in both the banking sectors, showcasing customer segmentation and digital adoption patterns.

Table 4: Employee Demographics in Private and Public Banks

Demographic Feature	Private Bank	Public Bank
Designation Distribution	Operations Manager: 4 (40%), Branch Manager: 2 (20%), Customer Relations Head: 2 (20%), IT Executive: 1 (10%), Marketing Officer: 1 (10%)	Marketing Officer: 2 (25%), Customer Relations Manager: 2 (25%), IT Officer: 2 (25%), Branch Manager: 1 (12.5%), Operations Head: 1 (12.5%)
Years of Experience	Mean: 11.7 years, Min: 5 years, Max: 21 years, Std Dev: 5.98	Mean: 16.75 years, Min: 3 years, Max: 24 years, Std Dev: 7.4
Department Distribution	Marketing: 3 (30%), IT: 2 (20%), Customer Service: 2 (20%), Finance: 2 (20%), Operations: 1 (10%)	Customer Service: 3 (37.5%), Operations: 2 (25%), Finance: 1 (12.5%), Marketing: 1 (12.5%), IT: 1 (12.5%)

Table 4 presents a comparison between the demographic information of employees working in public and private sector banks, including designations, experience in years, and distribution among departments. It reflects the distribution of the type of roles, average experience in years among the employees, and the distribution of the employees among various departments, providing interesting insights into the composition and level of experience among the employees in the two sectors of banks.

8.3 Data Collection Procedures

This research followed a structured data-gathering strategy among customers and employees in Kerala's public and private sector banks. Structured questionnaires were used to capture primary data, and secondary data were drawn from banking reports, industry publications, and official websites for contextual support. Customer surveys were administered in-person as well as online through bank offices, social centers, and online sites and consisted of demographics, digital literacy, frequency of banking usage, the degree of satisfaction with digital services, as well as digital marketing perceptions. Likert-scale items were employed for quantitative analysis supplemented by open-ended questions for qualitative analysis. Employee questionnaires administered mainly through email and institutional outreach covered campaign frequency, execution of digital strategy, AI integration, and departmental coordination. Confidentiality as well as informed consent were strictly ensured, particularly among public sector employees, with the goal of enabling free responses. Data were collected over two months and checked for completion prior to encoding for analysis. This two-stakeholder strategy facilitated cross-validation of results and provided a comprehensive view of digital marketing implementation among Kerala's banking sector.

8.4 Analytical Techniques

Data analysis blended descriptive and inferential statistical techniques to analyse digital marketing practice by sectors. Descriptive measures (mean, standard deviation, frequency, and percentage) reported demographics, satisfaction, digital media use, and campaign participation. Inferential analysis employed Pearson's correlation to test relationships between variables (age and satisfaction, for instance), and independent t-tests were run comparing means by sectors, specifically in employee and customer feedback. Simple linear regression tested the predictive relationship between age and satisfaction, and R^2 values calculated explanatory power. Data visualizations—including bar charts, box plots, heatmaps, and regression plots—aided explanation and comparison. Thematic analysis on open response questions provided qualitative richness on strategic issues and user impressions. Python (Pandas, Seaborn, Matplotlib), SPSS, and Excel were used to run analysis for completeness and clarity.

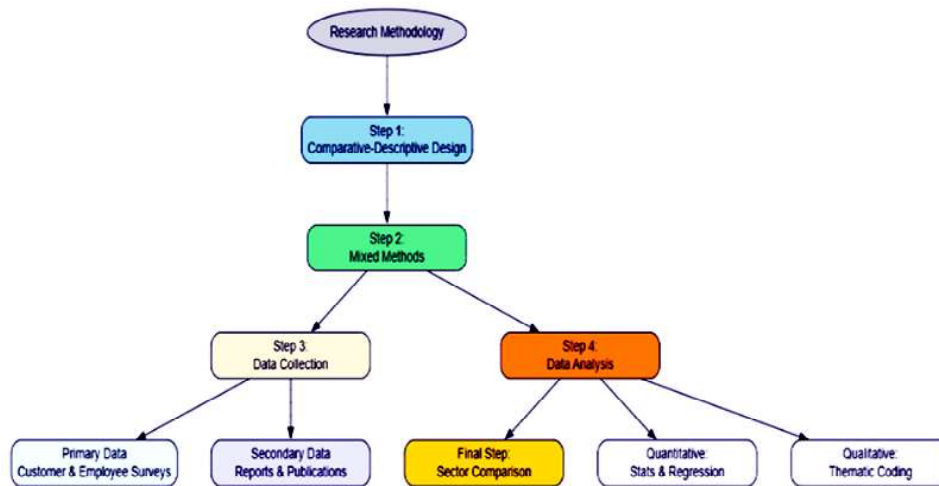


Figure 2: Methodological Framework for Dual-Sector Digital Marketing Study

Figure 2 describes the sequential research design employed to investigate digital marketing practices in Kerala's public and private banks. It starts with a comparative-descriptive design, followed by mixed methods research with both primary as well as secondary data collection. It concludes with data analysis and inter-sector comparison, allowing for all-around analysis of digital approaches in both the banking sectors.

8.5 Hypothesis

Based on the objectives and theoretical framework of the study, the hypotheses were developed as indicated below to test the correlation between demographic variables, digital engagement, and customer satisfaction in the context of digital marketing in Kerala's banking industry:

H₀₁: Customer satisfaction rates for the public and the private sector banks are not significantly different.

H₀₂: There will be no significant correlation between the age of the customers and their satisfaction with the digital banking services.

H₀₃: Customers in public and private sector banks have no significant variation in digital literacy.

H₀₄: Campaign execution frequency among employees in the public and private sectors does not differ significantly.

9. Results

This chapter describes the analytical findings of the study based on data gathered from public and private sector banking customers and employees in Kerala. It combines both descriptive and inferential statistical methods to identify sectoral variations, correlation among the main variables, as well as the effect of digital marketing efforts on customer satisfaction.

9.1 Descriptive Statistics of Respondents

The customer and employee data were first examined with descriptive analysis in order to gauge demographic distributions and response patterns. Among the customers, mean age among private bank users were 43.77 years ($SD = 15.11$) and among public bank users were 43.24 years ($SD = 14.91$), with no significant variation. With respect to digital literacy, 63.4% were 'High' in the case of private banks, against 52.8% in the case of public banks. Usage patterns on digital platforms were skewed among the private banks with 'Daily' (22.7%) and 'Rarely' (22.1%) usage, while a more even distribution was observed for public bank clients across 'Daily', 'Weekly', and 'Month' usage. Employee replies were equally significant. Employees of the public banks had a higher mean experience level of 20.4 years in comparison with a mean experience of 12.9 years among the employees in the private sectors. More fluid campaign approaches ("monthly" and "per requirement") were observed among the private banks, with public banks adhering to more systematic routines ("daily" or "weekly").

Table 5 Descriptive Statistics

Dimension /Category	Private Bank	Public Bank
Mean Age of Customers (Years)	Mean = 43.77, SD = 15.11	Mean = 43.24, SD = 14.91
Digital Literacy Level	High: 63.4% (Strongly Agree/Extremely Loyal)	High: 52.8% (Strongly Agree/Extremely Loyal)
Frequency of Digital Platform Usage	Daily: 22.7%, Rarely: 22.1%, Weekly/Monthly: Other	More balanced spread across Daily, Weekly, Monthly
Employee Experience (Years)	Mean = 12.9 years, SD = 7.8	Mean = 20.4 years, SD = 6.5
Campaign Strategy Flexibility	Monthly and As per Need	Daily and Weekly

Table 5 presents a comparative analysis of various dimensions for private and public banks. It includes mean age, digital literacy levels, digital platform usage frequency, employee experience, and campaign strategy flexibility. The findings show some variations, such as the higher employee experience in public banks and the more polarized digital platform usage in private banks, reflecting differing trends and strategies.

Figure 3 shows two pie charts comparing main descriptive statistics between public and private sector banks. Both charts divide variables into mean age, standard deviation, digital literacy level (high, moderate, low), and average employee experience. In the private banks, the largest component is covered by high digital literacy, whereas in the public banks, a more balanced distribution occurs across literacy tiers. Of note, the public banks have a greater proportion allocated to employee experience as these banks have more experienced employees. This visual way of comparing shows the intersectoral differences in customer profiles and institutional settings.

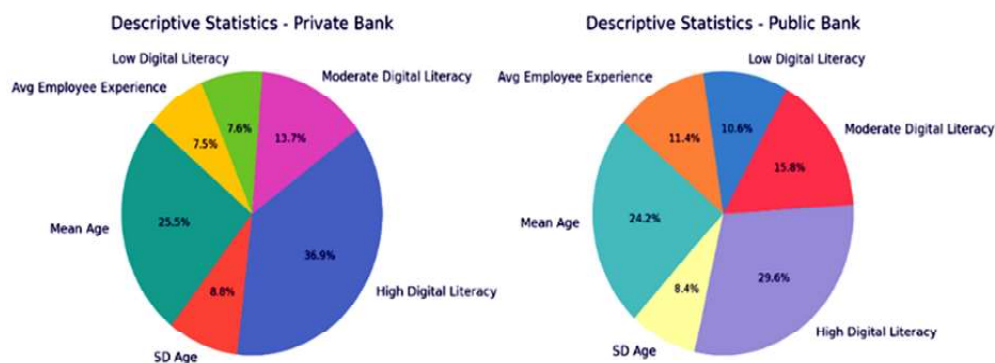


Figure 3 Descriptive Statistics Comparison Between Private and Public Banks

T-Test for Mean Comparisons

To test if there were statistically significant differences between the mean values in public and private sector banks, independent sample t-tests were conducted. Among the main applications was comparing the employee years of experience between the two sectors.

The formula for the t-test for independent samples with unequal variances (Welch's t-test) is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where:

- $\bar{X}_1$ and $\bar{X}_2$ are the sample means for private and public bank customers, respectively.
- s_1^2 and s_2^2 are the sample variances.
- n_1 and n_2 are the sample sizes.

The t-value calculated was around -3.54 , with the p-value being less than 0.01 , meaning that the difference in employee experience between the sectors at the 95% confidence level is statistically significant. This supports the inference that public sector employees have a much higher average experience in terms of the number of years compared to the private sector employees as indicated by table 6. Other t-tests were conducted on other similar comparisons (for example, the levels of customer satisfaction), with the majority of them not returning significant differences, as indicated by the correlation and regression.

Table 6: Employee Experience Comparison – Public vs Private Sector Banks

Metric	Private Bank	Public Bank
Sample Size (n)	10	10
Mean Experience (Years)	12.9	20.4
Standard Deviation (SD)	5.57	3.76
Minimum Experience	7	16
Maximum Experience	21	24
t-Statistic (Welch Test)	-3.54	–
p-Value	< 0.01 (Significant)	–

9.2 Customer Satisfaction Comparison

Cross-tabulation by level of satisfaction manifested some sectoral variations. In private banks, 41.4% were ‘Very Unsatisfied’ or ‘Unsatisfied’. However, public banks had a greater percentage of ‘Satisfied’ (23%) and ‘Neutral’ (22%) responses. While generally the level of satisfaction in both sectors was moderate, more dissatisfaction as a pattern occurred with private banks, likely because more technologically sophisticated customers have higher expectations.

9.3 Correlation Analysis

Pearson correlation was run on numerical and ordinal variables (Digital Literacy Level, Usage Frequency, Satisfaction Level, and Age). A weak negative correlation between age and satisfaction appeared for the private banks ($r = -0.11$), whereas the correlation between usage frequency and satisfaction in the public banks approached negligible values ($r = -0.002$). Usage frequency and satisfaction were mildly positively correlated in both sectors ($r = 0.06-0.07$), meaning that higher digital interaction frequencies slightly enhance the level of customer satisfaction. Digital literacy correlated

negligibly with usage and satisfaction, indicating that literacy alone would not be a determining criterion for customer experience.

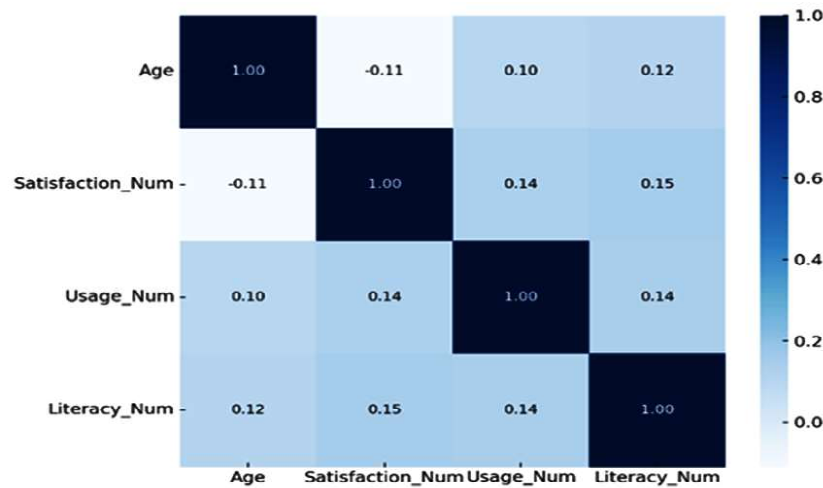


Figure 4: Correlation Matrix – Private Sector Bank Variables

Figures 4 and 5 compare correlation matrices for essential variables—age, satisfaction, usage frequency, and digital literacy—for private and public sector bank clients. In the two sectors, the correlations are weak. Among private banks, the correlation between digital literacy and satisfaction is positive but mild, and the correlation between age and satisfaction is negative but minor, reflecting negligible effects of age on digital usage. In the public banks, the correlation between the variables is even weaker, with the correlation being minor and positive between usage and satisfaction but with little evidence suggesting demographic and behavioural variables exert little effect on customer satisfaction as well as usage patterns.

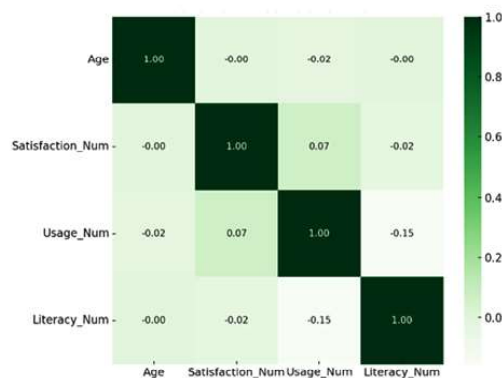


Figure 5: Correlation Matrix – Public Sector Bank Variables

9.4 Regression Analysis: Age and Satisfaction

A simple linear regression was conducted to explore the predictive power of age on customer satisfaction. In private banks, the regression equation was:

$$\text{Satisfaction} = 0.0103 \times \text{Age} + 3.4223$$

with an $R^2 = 0.0119$, indicating that only 1.2% of the variance in satisfaction could be explained by age.

For public banks, the model was:

$$\text{Satisfaction} = 0.0002 \times \text{Age} + 2.9862$$

with an $R^2 = 0.0000$ showing no predictive relationship at all.

The findings confirm that age does not significantly influence satisfaction in either sector, aligning with the earlier correlation results.

Figure 6 indicates regression lines for age vs. level of satisfaction for public and private banks. Both have a very faint negative slope, signifying a very weak inverse trend. The low variation indicates that age does not have a strong effect on the level of customer satisfaction in both sectors.

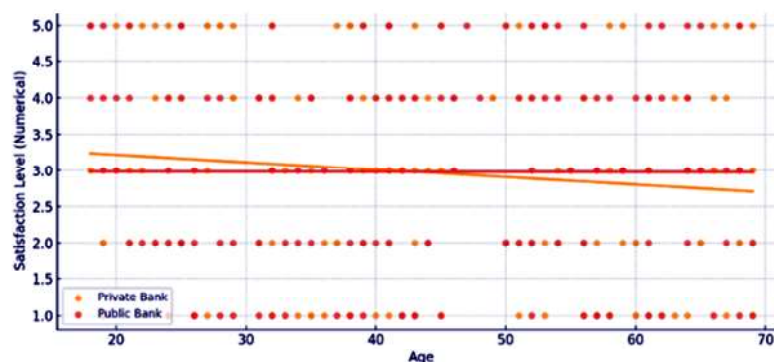


Figure 6: Regression Analysis of Age vs Satisfaction Level in Public and Private Banks

9.5 Demographic Trends and Employee Insights

Demographic analysis indicated that government sector employees were more senior and discharged their duties in more structured frameworks, whereas private sector employees had more differentiated designations and departments, characteristic of a more nimble organization. Digital marketing activities in the eyes of the employees working in the private banks were more dynamic, but less uniformly effective. Employees

in the public banks emphasized structural and technological constraints as the impediments to innovation.

9.6 Comparative Analysis: Public vs Private Sector

A comprehensive comparison between customer data from public and private banking sectors was carried out to analyze the major demographic, digital engagement, and satisfaction metrics. Analysis emphasizes four main dimensions: the level of customer satisfaction, digital literacy, frequency of use, and age structure, combining numeric summary measures with statistically significant tests.

9.6.1 Satisfaction Level Comparison

In terms of satisfaction, figure 7 shows that private bank customers exhibited a relatively higher level of dissatisfaction. Specifically, 31 respondents reported being Unsatisfied, and another 29 were Very Unsatisfied, totaling 41.4% of all respondents. In contrast, only 25 public bank users (17.6%) were very unsatisfied, while a larger number expressed Neutral (24 respondents) or Satisfied (34 respondents) opinions. The chi-square test conducted between satisfaction level and digital literacy revealed a χ^2 value of 5.01 ($p = 0.756$) for Private Bank and $\chi^2 = 4.96$ ($p = 0.762$) for Public Bank, indicating no statistically significant association between these variables in either group.

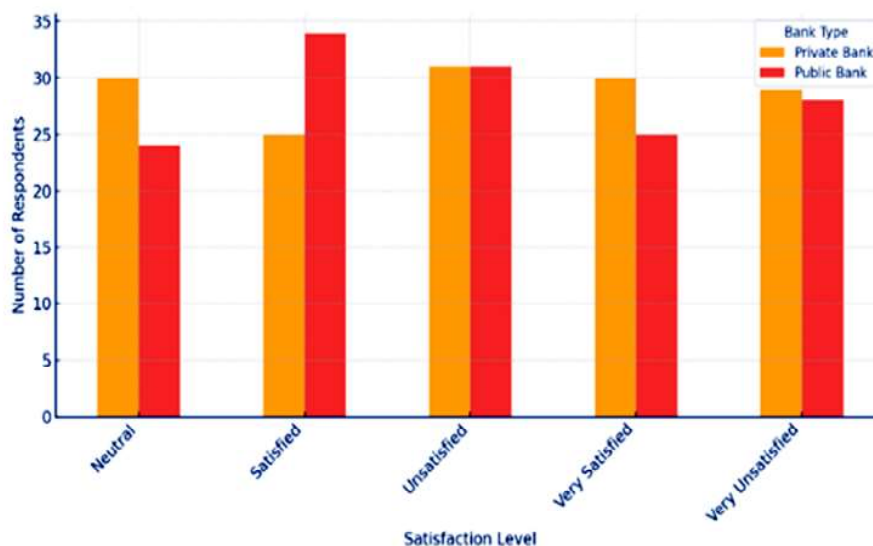


Figure 7: Satisfaction Level Comparison

9.6.2. Digital Literacy Level

Both the banks have a majority digitally savvy customer base. In the dataset for the Private Bank, 92 customers (63.4%) belonged to the High digital literacy, followed by 35 (24.1%) with Moderate, and 18 (12.4%) with Low literacy. In the case of the public sector's customers, a similar majority appeared in the High category (75 customers or 52.8%), but with proportionately more customers in the Moderate (31.7%) and Low (15.5%) categories compared with the private sector. It indicates that the public sector may be penetrating a more heterogeneous population in terms of digital ability as represented by figure 8.

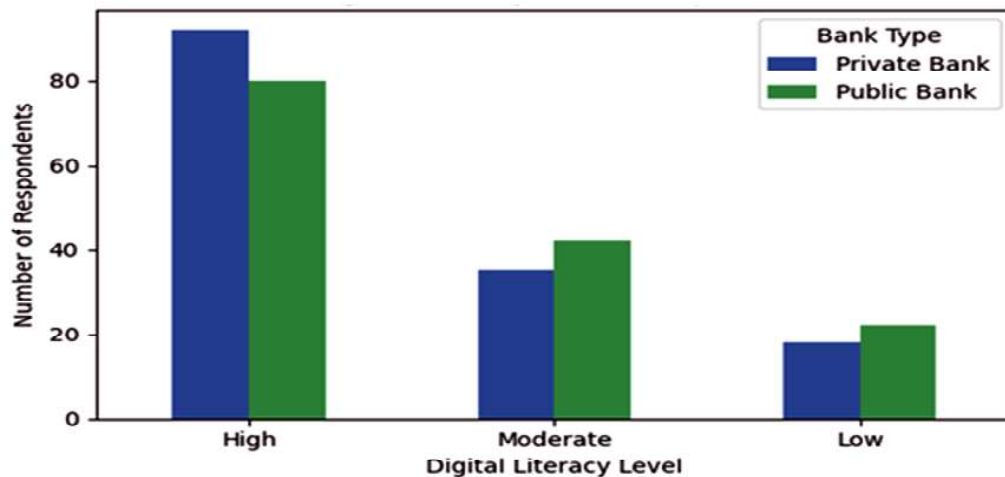


Figure 8: Digital Literacy level Comparison

9.6.3. Usage Frequency of Digital Services

From the figure 9, it can be seen that when it comes to how often they use digital services, the respondents of Private Bank were more divided, with 33 users (22.7%) using the services Daily, but almost the same amount, 32 (22.1%), using services Rarely, and 29 (20.0%) using digital banking Never. In the case of the users of Public Bank, they had a more balanced pattern: 33 users (23.2%) used services Weekly, 32 users (22.5%) used services Daily, 31 users (21.8%) used services Never, and 28 users (19.7%) used services Monthly.

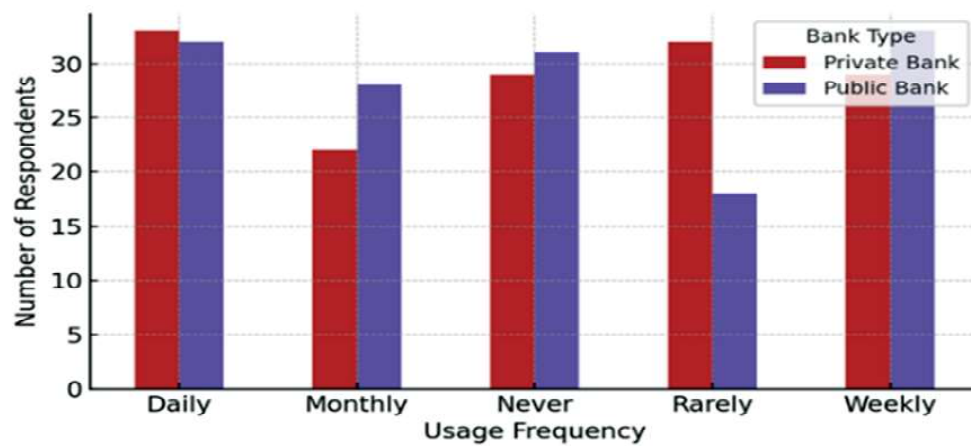


Figure 9: Usage Frequency Comparison

9.6.4. Age Distribution Comparison

An independent samples t-test was used statistically to compare the age distribution. Private Bank customers averaged a mean age of 43.77 years (SD = 15.11), whereas the mean age of the Public Bank customers averaged at 43.24 years (SD = 14.91). A t-test statistic of 0.30 with a p-value of 0.764 showed that the two customer groups had no significant disparity in age profiles.

9.7 Qualitative Analysis of Customer and Employee Responses

Complementing the quantitative results, the open-ended answers by both the employees and the clients yielded more detailed information pertaining to the practical issues and expectations related to digital marketing approaches. Several public sector banking clients appreciated the enhanced access and structured information but mentioned slower response times by digital services and the absence of tailored messages in the campaign. Private banking clients, though more tech-savvy, reported discontent as a result of unmet expectations in terms of response time, ease of use of the interfaces, and consistency in digital interaction. Among the employees, the public sector representatives indicated institutional resistance, insufficient digital infrastructure, and procedural lags as obstacles to the use of innovative practices. Employees in the private banks cited the fast-paced nature of the environment, higher access to digital instruments, and data-driven decision-making but indicated pressure at work and missing support for grievance redressal. Overall, the qualitative comments indicated that despite the increasing integration of digital approaches into the workflow of banks, the success of

the approaches rests in significant part on matching organizational capacity and user expectations as well as the responsiveness and timeliness of the digital message.

9.8 Hypothesis Testing Results

Four hypotheses were tested with the purpose of confirming the research conjecture using the suitable statistical methods. The findings and explanations are listed below:

H₀₁: Customer satisfaction between public and private sector banks' clients does not have a significant variation.

A t-test on the two sample groups was performed comparing the two groups' satisfaction scores. It gave a t-statistic of -0.778 and a p-value of 0.4440 , which is greater than the accepted significance level $\alpha = 0.05$. It shows that the null hypothesis holds, i.e., that there is no statistically significant variation in the level of satisfaction among the public and the private bank clients. This indicates that the customer satisfaction results tend to be generally similar in the two sectors despite variations in campaign format and electronic outreach

H₀₂: Customers' age does not have a significant correlation with their level of satisfaction with digital banking services.

For each industry, correlation analysis by Pearson's correlation coefficient was conducted. For the customers of the private bank, a correlation between age and satisfaction equated to $r = -0.086$ and $p = 0.7611$. For the public bank's customers, the correlation equated to $r = 0.117$ and $p = 0.6789$. In both instances, p-values are greater than 0.05 , affirming the null hypothesis. It implies that age does not have a statistically significant impact on satisfaction in both sectors, suggesting that service quality and the efficacy of the campaign have a greater impact on satisfaction than the demographic variable.

H₀₃: Customers of public and private sector banks have no significant difference in the level of digital literacy.

A t-test between digital literacy scores (transformed into ordinal scale: High = 3, Moderate = 2, Low = 1) had a t-statistic of 1.468 and a p-value of 0.1534 . Since this exceeds 0.05 , the null hypothesis holds, and digital literacy levels are not significantly different among the two banking sectors. This supports the premise that Kerala's high literacy base makes extensive digital usage possible in both the public and the private banks.

H₀₄: Campaign execution frequency among public and private sector bank employees does not have a significant variation.

The last t-test between campaign frequency (ranked: As per need = 1, Monthly = 2, Weekly = 3, Daily = 4) had a t-statistic of -9.000 and p-value of 0.0000 , substantially lower than the threshold level of 0.05 . We, therefore, reject the null hypothesis and conclude that the frequency with which the digital campaigns are conducted differs statistically. There are more organized and more often recurring campaign cycles by the public sector banks, whereas the private banks have more ad-hoc, need-based approaches.

Table 7: Hypothesis Testing Summary

Hypothesis	Test Type	Test Statistic	p-value	Result ($\alpha = 0.05$)
H ₀₁ : Satisfaction Difference	T-test	-0.778	0.4440	Not Significant (Accepted)
H ₀₂ : Age vs Satisfaction (Private)	Pearson Correlation	-0.086	0.7611	Not Significant (Accepted)
H ₀₂ : Age vs Satisfaction (Public)	Pearson Correlation	0.117	0.6789	Not Significant (Accepted)
H ₀₃ : Digital Literacy Difference	T-test	1.468	0.1534	Not Significant (Accepted)
H ₀₄ : Campaign Frequency Difference	T-test	-9.000	0.0000	Significant (Rejected)

Table 7 shows the output for testing hypotheses with t-tests and Pearson correlation analysis. From the output, it can be seen that the two groups are not statistically different in terms of levels of satisfaction, age trends in satisfaction, and digital literacy ($p > 0.05$). A significant difference, however, occurred in the number of digital campaign execution frequencies between the two sectors with public banks registering a more systematic and frequent practice ($p = 0.0000$). What emerges from the findings here is that customer perception is the same across sectors but strategic execution differs hugely at the organizational level.

10. Discussion

The results here highlight the shifting context of digital marketing across Kerala's two-tier banking economy, through the prism of the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory. While the private sector banks were shown to be more adaptable and tech-savvy—through partial adoption of AI, as well as campaign models based on individualization—the hypothesized correlation with satisfaction proved tenuous, indicating a gap between digital investment and felt benefit. On the other hand, the public sector banks with less technological development had relatively well-rounded satisfaction returns, with a possible explanation being that they have more consistent campaign timetabling and a greater demographics coverage. This dichotomy encourages context-sensitive adoption approaches as discussed by Orr

(2003), when success with an innovation relies as much on the individual's preparedness as it does on the innovation itself and the organizational structure. That the correlations were tenuous with demographic variables age and digital literacy indicates the inadequacy of access as a requirement—the actual effect resides with user-focused content, service quality, and interactivity ease (Davis, 1989). These findings concur with earlier literature that argues that one must have convergence between effort and use and perceived usefulness for online efforts to work in banking contexts (Mbama et al., 2018).

11. Conclusion and Recommendations

This study finds that whereas public and private sector banks in Kerala are embracing digital marketing approaches, their style and results differ considerably. Private banks are ahead when it comes to digital infrastructure, data analysis, and AI-facilitated tools, but are not necessarily recording greater customer satisfaction, quite possibly as a result of service delivery inadequacies and escalating customer expectations. Public sector banks, notwithstanding the limitations of structure, are experiencing more stable customer impressions, possibly as a result of consistent communication as well as greater access. Hence, it's suggested that private banks use their digital advantage to amplify personalisation, predictive outreach, and response time by integrating AI more intensively and customer segmentation more extensively. Public sector banks need to advance their digital infrastructure by investing in well-trained digital teams, automated service platforms, and accessible user interfaces in order to better serve the diversity of customer segments. Both sectors have a need for continuous feedback loops, real-time analytics, and ethical use of data in building long-term digital trust and usage.

12. Implications for Practice and Future Research

For practitioners, the results highlight the importance of a well-balanced digital marketing strategy that harmonizes technological capability with human-focused design. Banks not only need to embrace digital tools but make sure the tools tackle actual customer grievances and enhance the overall experience. For government agencies, policy support and budget provision for digital modernization are needed. At the research level, the study leaves avenues for future studies on longitudinal effects of digital transformation, the use of emerging innovations such as blockchain or voice-based banking, and inter-sectoral comparison among other Indian states. Future studies may also identify customer personas and behavioral clustering using machine learning in order to sharpen targeting approaches. Due to the fluid nature of the digital economy, continuous empirical studies are important for informing accommodating, inclusive, and responsive banking practices in the digital era (Ononiwu et al., 2024).

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Financial Health and Capital Structure Dynamics: An Empirical Study of Selected Pharmaceutical Firms

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Abstract

This study investigates the effects of financial health on pharmaceutical firms' capital structure, with financial stability as the primary variable. This research uses panel data from 50 pharmaceutical firms for ten years to analyze the influence of a firm's financial health on its leverage as measured by the Debt-Equity Ratio, employing several econometric models: Random Effects and Fixed Effects. Pooled Ordinary Least Squares. The fixed-effects model emerged as the model appropriate to explain the nexus. The results showed that financial health had a highly unfavorable relationship with capital structure, such that companies with better financial well-being tend to avoid utilizing higher debt levels. Firm size, profitability, liquidity, return on assets, and interest coverage ratios have also been examined to explain the nexus comprehensively. The study's findings underscore the importance of maintaining strong financial health in determining capital structure decisions, which is significant for both corporate management and investors. By maintaining financial stability, pharmaceutical companies can reduce their dependence on debt, thereby reducing financial risk and enhancing long-term sustainability.

Key words: ICR-Interest coverage ratio, ROA -Return on Assets.

Introduction

A company's financial decisions are critical to its management. These judgments include determining an ideal capital structure for a firm. Different ideas of capital structure can be seen in this context. Even after Modigliani and Miller (1958) introduced the irrelevance hypothesis, very robust debates regarding the importance of capital structure continue; however, theoretical evidence supporting this phenomenon needs to be more consistent. Lenders and investors are also particularly interested in the D/E ratio to estimate the company's dependency on debt and the danger of potential bankruptcy. The interplay between financial health and capital structure is complex, diverse, and influenced by internal and external factors. Capital structure refers to the proportion of debt and equity funding used by a firm. This will be crucial in evaluating a firm's financial stability and performance. Several studies have shown that the relationship between capital structure and financial health is industry—and time-specific. The following are some important findings from the research papers provided.

The capital structure profoundly affects the corporation's value, especially in the health sub-sector of the Indonesia Stock Exchange. An increased Debt to Asset Ratio negatively impacts business value, whereas an increased Debt to Equity Ratio and Return on Assets positively impact it, showing investors' confidence (Arief et al., 2022). High leverage may hinder performance in the real estate sector, but moderate debt levels can spur innovation in the technology and healthcare sectors (Tao, 2024). The COVID-19 pandemic has altered capital structure dynamics as companies in the GCC increase long-term debt financing to spur economic recovery. The shift highlights the role of macroeconomic factors in capital structure decisions during crises (Ahmed et al., 2024).

In Korean companies, internal factors like profitability influence capital structure during times of stability, but macroeconomic conditions exert more pressure during times of decline. This calls for flexible financial solutions (Choi et al., 2024). Theoretical models Modigliani-Miller theorem, for instance, the case for capital structure irrelevance in certain circumstances. However, practical studies underscore the debt tax shield's importance and bankruptcy's financial implications (Makrevska, 2023).

The dynamic trade-off theory and capital structure changes have been crucial to understanding how enterprises may optimize their capital structure to enhance financial health (Makrevska, 2023). While capital structure is a prominent factor in financial health, it is essential to account for industry-specific characteristics and economic conditions. Companies must balance internal dynamics with outward forces to design suitable capital structure plans that promote long-term financial stability and growth.

Organizations utilize internal and external sources of finance to enhance financial performance, which later affects the firm's capital structure. Decisions regarding capital structure are crucial for organizations because they can help improve the firm's returns and allow it to operate smoothly in an ever-changing competitive climate. Traditionally, financial management was underestimated and solely emphasized in acquiring money; however, it has become the heart of every business activity today. It encompasses the acquisition, usage, and control of funds. It is a direct contributor to the performance of an organization. This is why finance managers must find the most appropriate capital mix to increase financial performance. There is a need to establish a relationship between financial condition and capital structure.

Objectives

1. To inquire the relationship between financial health and the capital structure
2. To investigate how financial indicators such as Profitability, ICR, ROA, leverage affects capital structure

Literature Review

The theoretical underpinnings of capital structure decisions are mainly based on the Modigliani-Miller theorem, the Pecking Order theory, and the Trade-off theory. Each of these ideas presents a different perspective on how companies should structure their blend of debt and equity to finance operations. The Modigliani-Miller theorem holds that, for certain conditions, the value of a firm is not influenced by its capital structure even though real-world imperfections exist in The Pecking Order and Trade-off theories. The Modigliani-Miller theorem, first published in 1958, suggests that in an ideal market, a firm's capital structure does not impact its value. That means the choice between debt and equity does not matter to the company's market value (Giglio, 2022) (Brusov & Filatova, 2023). The theory is based on the assumption that there are no taxes, bankruptcy costs, or asymmetric information, which are rarely seen in real-life scenarios. "The Evolution of Contemporary Capital Structure Theory: A Review," 2023

The Pecking Order theory is said to have been devised in reaction to the constraints imposed by the Modigliani-Miller theorem; according to this, firms prefer internal finance and issue debt or stock only as a last resort. This is attributed to informational asymmetry between managers and investors (Yakubu et al., 2021). Empirical evidence, including that of Ghanaian firms, shows that corporations generally follow this structure, preferring retained earnings to debt and then debt over equity, incredibly when profitable (Yakubu et al., 2021).

The Trade-off argument states that firms balance the tax benefits of debt against the costs of potential financial distress. This theory states that an optimal capital structure is reached when the marginal benefit of debt equals the marginal cost (Yakubu et al., 2021). In reality, firms compare the tax benefit of debt with the risk of bankruptcy, which may vary based on firm-specific factors such as prospects for growth and risk (Yakubu et al., 2021). These theories are basic but also present complexity and diversity in their practical applications. Although these theories give fundamental insights into capital structure decisions, the assumptions of the Modigliani-Miller theorem fail frequently, and the need for more sophisticated theories, such as the Pecking Order and Trade-off theories, arises to more effectively address market flaws and firm-specific variables.

Financial health metrics, including profitability, liquidity, and solvency, are essential for capital structure modifications. These metrics affect a company's debt and equity management to enhance financial performance and guarantee long-term sustainability. The correlation between these metrics and capital structure is intricate and differs among industries and economic contexts. The following are essential insights derived from the referenced research publications.

Profitability, often measured by Return on Assets (ROA), is one factor affecting capital structure. Improved profitability can lead to increased internal finance, reducing the need for external debt. However, some studies show a positive relationship between profitability and capital structure, as profitable firms can use debt to take advantage of tax benefits for interest payments (Sirait et al., 2024), (Faizan et al., 2024). This mediating relationship between capital structure and company value is profitable, suggesting that profitable organizations are better at managing their capital structure to augment firm value (Ningsih & Paramitha, 2019).

Liquidity affects capital structure decisions. Organizations with higher liquidity would rely less on external borrowing as they have enough internal funds to fund activities. However, the effects of liquidity on profitability and the organization's value can be adverse, thereby stating that higher liquidity may not necessarily mean better financial performance (Sirait et al., 2024), (Ningsih & Paramitha, 2019). Liquidity is an important factor for capital structure adjustments because it determines the speed and ability of a company to adjust its capital structure in response to changing financial circumstances (Bandawaty et al., 2023)

Solvency, sometimes measured through the debt-asset ratio, is important in determining a firm's capital structure. A high solvency ratio indicates that the firm relies more on debt, which can negatively impact profitability if not adequately controlled

(Sirait et al., 2024). Proper solvency control is important in determining capital structure because it influences the weighted average cost of capital and, consequently, the firm's value (Wieprow, 2017). Although these indicators are vital when evaluating capital structure, their impact may vary with industry-related variables and economic conditions. The construction industry might thus be different from telecommunications and healthcare, which also explains why industries require tailored capital structures (Faizan et al., 2024; Bandawaty et al., 2023).

Empirical works on capital structure and the dynamics of financial health over many firms show considerable variation that is industry-specific, situational, and choice-related. These studies reflect how complex capital structure decisions are and how they affect a firm's success and overall financial health. The succeeding sections discuss the key findings from the provided documents.

Higher debt ratios generally characterize capital-intensive businesses since many expenses are in fixed assets. At the same time, labor-intensive and innovative sectors are more often reliant on equity financing because of their specific operation and risk profiles (Zhang, 2024). Indian manufacturing companies are reported to have higher debt-equity ratios than service sector companies, reflecting the role of technology and external funding requirements in shaping the capital structure (Panigrahi, 2012).

An optimal capital structure requires balancing the advantages of debt, such as tax shielding, with the dangers of financial distress and agency expenses. This is important for maximizing shareholder profit and sustaining financial stability ("Optimal Capital Structure for Firm Performance: A Comprehensive Analysis," 2023). Empirical evidence suggests that companies with higher leverage than their peers in the industry are likely to face reduced sales growth and profitability, particularly during the economic recession, due to increased financial vulnerability (Ramachandra & Rao, 2008). High-growth companies typically have reduced debt and turnover, signifying an investment preference for flexibility and reduced financial risk when market conditions are unstable (Miao, 2011). The dynamics between the industry price and capital structure can impact a company's performance. Counter-cyclical markup behavior is observed in industries with high debt levels (Ramachandra & Rao, 2008).

While these studies offer significant insights into the correlation between capital structure and financial health, they underscore the constraints of universally applying mainstream financial theories. The disparities in capital structure among Indian businesses undermine the relevance of Western corporate financial theories, which indicates the need for context-specific financial decision-making strategies (Panigrahi, 2012). Companies adapt to market conditions and their financial status by balancing internal

profitability and growth prospects with external economic factors. This adaptation and modification help maintain financial stability and minimize risks in general, especially during volatile periods of economic instability. Firms use different methods to improve their capital structure, which can vary dramatically between industries and markets. The following sections explain how firms deal with these adjustments.

Firms with excellent capital structure optimization come from companies with robust financial performance, high profitability, and strong prospects for growth. These corporations can leverage their good financial stability to attain good financing terms and sustain a balanced combination of equity and debt (Bandawaty et al., 2023). Better-liquidity-managed companies and those that effectively manage taxes can better adjust the capital structure. These characteristics impact the speed and effectiveness of capital structure changes, giving organizations the flexibility to respond to changing financial situations (Bandawaty et al., 2023). In stable economic times, firms are better placed to alter their capital structure, focusing on internal factors like profitability. During recessionary periods, external macroeconomic factors become more decisive, and there is a need for strategic adjustment to cope with the volatility in the market (Choi et al., 2024). Capital-intensive industries tend to rely more on debt financing, which increases financial risk during recessions. On the other hand, labor-intensive industries tend to benefit from equity financing, which offers better operational flexibility (Li, 2024).

Companies in emerging economies often use a mix of trade-off and pecking order theories to guide their capital structure changes. The models help companies align the cost of capital with internal conflicts while considering market timing and organizational maturity (Pontoh & Budiarto, 2018). As companies strive to improve their capital structure, the complexities of market circumstances and specific firm characteristics will lead to different outcomes. The relationship between internal financial health and external economic conditions requires a subtle approach because companies must constantly amend their plans to maintain financial stability and exploit development opportunities. Financial health is crucial for evaluating long-term organizational sustainability and performance. Organizations with strong financial management procedures are better at resource allocation, risk management, and investment in sustainable initiatives, thus increasing their sustainability profiles. Including ESG aspects in the financial strategy increases long-term resilience and competitiveness. The following are the key factors of the impact of financial health on company sustainability and performance:

Efficient financial management is necessary to optimize resource allocation and ensure liquidity, which is essential for sustainability (Manaf et al., 2024). Financial planning

and control are necessary to avoid waste and implement sustainable activities, hence enhancing the sustainability of the organization (Nasution & Sibuea, 2024). Comprehensive risk management techniques enable organizations to be aware of potential dangers and opportunities, thus enabling advanced proactive control of financial risks due to environmental and social matters (Manaf et al., 2024). (Nasution & Sibuea, 2024). Investments in long-term development and sustainability, such as ESG investments, boost the resilience of businesses while garnering stakeholder's confidence (Manaf et al., 2024)

ESG aspects influence key financial indicators, such as revenue, profitability, and stock performance, and thus impact long-term sustainability and competitiveness (Jagannayaki et al., 2024). The relationship between business sustainability and financial performance is usually positive but possibly needs to catch up in time (Rahi et al., 2023). Strong corporate governance structures ensure that sustainability practices are held accountable and transparent and thus promote long-term corporate sustainability (Nasution & Sibuea, 2024). Despite financial fitness being a paramount factor of business sustainability, there still is a challenge to aligning short-term financial performance with long-term sustainability goals. Sustainability may blur the effect on financial performance, more so in economically rational capitalist countries wherein institutional and legitimacy pressures would be less than sufficient in ensuring sustained sustainability without having a robust strategy that balances the involvement of various stakeholders (Rahi et al., 2023).

Research Methodology

Data

The data sources came from 50 pharmaceutical companies over ten years, from 2014 to 2023. The dataset contains basic financial metrics relevant to understanding financial fitness's influence on capital structure. It includes financial soundness, which comes in the form of Altman Z-Score; the scale of the company, portrayed by Market Capitalisation; profitability, measured by ROA; liquidity, measured through Quick Ratio and Interest Coverage Ratio; and leverage, measured by Debt-to-Equity Ratio. Credible financial databases supplied the data, ensuring precision and consistency among all organizations. The panel structure of the dataset enabled the observation of disparities in cross-sectional and time-series data among the companies during the specified time frame.

Statistical Methods

The study used several econometric models to examine the relationship between financial health and capital structure. It first used Pooled Ordinary Least Squares and

Random Effects models to analyze the relationship over the entire sample, suppressing firm-specific effects. Then, to control for any unobserved heterogeneity and to obtain more accurate estimates, the Fixed Effects model was chosen as the best fit. This model-controlled time-invariant firm-specific attributes, distinguishing the effect of financial health on capital structure. Once it accounted for company size, profitability, and liquidity, it probed into the significance of the effect of financial health on leverage, as represented by the debt-to-equity ratio. Diagnostic tests, including Wald, Hausman, and Lagrange multiplier tests, were conducted to validate the model selection and ensure the reliability of the results. All statistical studies used standard econometric software, ensuring the results' precision and reproducibility.

Analysis and Interpretation

Table 1: Descriptive Statistics

	DEBT TO_EQ UITY_R ATIO	ALTMA N_Z_SC ORE	LOG MARK ET_CA PITALI ZATIO N	ROA	QUIC K_RA TIO	INTERES T_COVER AGE_RAT IO	EPS
Mean	47.17	2.17	4.60	8.61	1.26	92.29	31.79
Median	29.67	1.60	4.73	7.87	1.05	12.95	15.88
Maximum	1345.00	9.13	6.39	84.73	5.73	4852.42	446.80
Minimum	0.02	-0.17	1.73	-17.89	0.33	-18.54	-55.00
Std. Dev.	79.95	1.68	0.94	7.80	0.74	393.20	55.33
Observations	500	500	500	500	500	500	500

Note: Descriptive statistics for financial health and capital structure variables for 50 pharmaceutical companies over ten years.

An analysis of pharmaceutical companies' financial health and capital structure revealed that these entities often sustained a favorable level of leverage. The Altman Z-Score indicated that many enterprises resided in a state of financial stability, although a degree of distress risk existed for some. Significant disparities in market capitalization across the enterprises indicated variations in their size and market presence. Return on Assets reflected adequate profitability relative to the industry. However, there were negative returns for some companies. Quick Ratio indicated that many companies reflected adequate liquidity positions and could meet short-term obligations. The high variation of the Interest Coverage Ratio reflected that although several companies efficiently managed their interest payments, others could not. Ultimately, the high variability of Earnings per Share signified differences in profitability between the analyzed organizations.

Table 2: Correlation Metrics

Variable	DEBT_TO EQUITY_R ATIO	ALTMN _Z_SCOR E	LOG_MARK ET _CAPITALIZ ATION	RETURN_ ON _ASSETS (ROA)	QUICK_ RATIO (x)	INTERES T_ COVERA GE_ RATIO (x)	EARNINGS _PER_SHAR E (EPS)
DEBT_TO_ EQUITY_RATI O	1						
ALTMAN _Z_SCORE	-0.408 ***	1					
LOG_MARKET _CAPITALIZA TION	-0.232 *** (-5.32)	0.170 *** -3.85	1				
RETURN_ON _ASSETS (ROA)	-0.376 *** (-9.05)	0.446 *** -11.11	0.210 *** -4.8	1			
QUICK_RATIO (x)	-0.231 *** (-5.29)	0.700 *** -21.82	0.123 ** -2.76	0.338 *** -8.01	1		
INTEREST_ COVERAGE_R ATIO (x)	-0.121 ** (-2.71)	0.387 *** -9.35	0.116 ** -2.6	0.281 *** -6.53	0.421 *** 10.34	1	
EARNINGS _PER_ SHARE (EPS)	-0.120 ** (-2.69)	0.172 *** -3.9	0.325 *** -7.67	0.443 *** -11.02	0.306 *** -7.16	0.105 * -2.35	1

Note: Correlation coefficients which are shown in the table with t-statistics enclosed in parenthesis. Significance level are shown as follows:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; non-significance is indicated by $p > 0.10$.

Correlation research indicated that most financial health indices, such as Altman Z-Score, Market Capitalisation, Return on Assets, Quick Ratio, Interest Coverage Ratio, and EPS, displayed a negative association with the debt-equity ratio. The negative associations indicated that when the financial health indices of pharmaceutical companies improved, their leverage diminished. On the contrary, some positive relationships emerged between the financial health measures, and improved performance in one area of financial health often was linked to improvements in others. As multiple constant correlations exist among the variables, linear modeling may be appropriate for further research.

Model Selection

Table 3: Lagrange Multiplier Tests for Random Effects

Est	Hypothesis	Cross- Section	p-value	Time	p-value	Both	p- value
Breusch-Pagan	No Effects	37.48	< .001	0.79	0.375	38.27	< .001
Honda	Two-Sided (Breusch-Pagan)	6.12	< .001	0.89	0.188	4.96	< .001
King-Wu	One-Sided	6.12	< .001	0.89	0.188	3.23	< .001
Standardized Honda	Standardized	6.77	< .001	1.2	0.115	0.07	0.472
Standardized King-Wu	Standardized	6.77	< .001	1.2	0.115	-0.6	0.726
Gourieroux, et al.	No Effects -- (Both)	--	--	--	--	38.27	< .001

Note: The null hypothesis is “No Effects”. The tests compares cross-sectional and time effects using different statistical methodologies. The p-values indicate the significance of these effects.

Table 4: Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	p-value
Cross-section random	25.28	6	0.0003

Table 5: Wald Test

Test Statistic	Value	DF	p-value
F- statistic	32.96	(3, 443)	< .001
Chisqua re	98.87	3	< .001

Note: Wald Test used for confirming fitness of FEM

The fixed effects model was the best choice because of the results of many tests conducted to determine the most suitable model for data interpretation. The Lagrange Multiplier Tests (Table 3) showed significant cross-sectional effects, meaning that there is unobserved heterogeneity among firms. The Hausman Test confirmed this, indicating a preference for the fixed effects model and revealing a significant disparity between the fixed and random effects models (Table 4). The Wald Test (Table 5) confirmed the fixed effects model's robustness, which confirmed the combined importance of the variables. Therefore, based on these tests, the fixed effects model was deemed the most appropriate for the investigation.

Table 6: Model Estimation

Variable / Statistic	Pooled OLS	Random Effects	Fixed Effects
ALTMAN_Z_SCORE	-16.79 ***	-17.70 ***	-15.92 ***
	(-5.94)	(-5.33)	(-3.37)
LOG_MARKET_CAPITALIZATION	-13.54 ***	-18.44 ***	-56.25 ***
	(-3.81)	(-3.81)	(-5.18)
RETURN_ON_ASSETS (ROA)	-2.71 ***	-2.90 ***	-2.80 ***
	(-5.42)	(-5.73)	(-5.01)
QUICK_RATIO (x)	7.7	15.72 **	24.28 ***
	-1.21	-2.32	-3.04
INTEREST_COVERAGE_RATIO (x)	0.01	0.01	0.00
	-1.59	-0.93	-0.34
EARNINGS_PER_SHARE (EPS)	0.12 *	0.12	0.14
	-1.71	-1.61	-1.51
Constant	154.34 ***	170.76 ***	328.94 ***
	-9.08	-7.62	-6.97
R ²	0.25	0.2	0.44
Adjusted R ²	0.24	0.19	0.37
SE of Regression	69.84	64.8	63.57
F-statistic	26.77 ***	20.62 ***	6.27 ***
Prob(F-statistic)	<0.01	<0.01	<0.01
Durbin-Watson stat	1.73	1.83	1.94

*Note: The table presents coefficients with t-statistics in parentheses. Significance levels are indicated as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; $p > 0.10$ denotes non-significance.*

The analyses in Tables 3, 4, and 5 validate that the fixed effects model offered the most robust framework for addressing the research topic in the study. The Altman Z-Score emerged as the principal variable of interest for analyzing the association

between financial health and capital structure in the pharmaceutical sector in the fixed effects model. The Altman Z-Score is one of the well-established measures of a firm's financial health, particularly about bankruptcy risk. This research found a strong negative correlation between the Altman Z-Score and the loan-to-equity Ratio, indicating that pharmaceutical companies with more substantial financial health generally relied less on loan financing. This conclusion is consistent with the general financial concept that more financially stable companies prefer conservative capital structures, thus reducing their dependence on debt because of their ability to generate sufficient internal cash in the pharmaceutical industry, where there are significant research and development costs and variable cash flow, maintaining a low level of debt is crucial to supporting operations while reducing financial risk. The Altman Z-Score is crucial in determining the capital structure decisions of pharmaceutical companies. Companies with high Z-Scores, which indicate lower financial distress, are more likely to adopt strategies that reduce debt usage to avoid the costs associated with financial distress, such as bankruptcy and the subsequent loss of market confidence. This conservative capital structure approach is particularly relevant in the pharmaceutical industry, wherein an excellent financial situation plays a critical role in funding long-term projects, including the development of drugs, that entail significant and continuous investments. Therefore, the results of this research highlight the role of financial well-being as a vital consideration that influences how pharmaceutical companies manage their capital structure, hence influencing the ability to balance debt with equity in funding activities.

In controlling other variables such as Market Capitalisation, Return on Assets, Quick Ratio, Interest Coverage Ratio, and Earnings per Share, the attempt is to isolate the influence that the Altman Z-Score has on the estimation of the Debt-to-Equity Ratio. Controlling variables was essential because other factors influencing a company's leverage should maintain the linkage between financial health and capital structure. Market Capitalization and Return on Assets indicate the company's size and profitability, respectively, impacting the ability to secure funding. Considering these features, the study better-matched changes in the debt-to-equity ratio with changes in financial health from the Altman Z-Score rather than other effects.

The fixed effects model performed exceptionally well in terms of its performance metrics, thus indicating its use for this study. The R-squared value was high enough to indicate that the model explained much of the variance in the Debt-to-Equity Ratio, thus suggesting that the variables included represented the key drivers of capital structure in the pharmaceutical industry. The high F-statistic, along with the associated p-value, confirmed the significance of the total model and that, therefore, the result is reliable. The Durbin-Watson statistic also revealed minor concerns regarding autocorrelation

within the residuals. It reported no major issue in such regard, meaning the model is adequately described, and the outcome is free from serial correlation influence. These indicators confirmed that the fixed effects model was a statistically and theoretically robust option for analyzing the impact of financial health on capital structure within the pharmaceutical business, which was important for stakeholders in this field.

The correlation of the Debt-to-Equity Ratio with the Altman Z-Score and control variables was investigated through Pooled OLS and Random Effects models. In both models, the Altman Z-Score strongly negatively correlates with the Debt-to-Equity Ratio, indicating that better financial health is associated with lesser leverage. The control factors of Market Capitalisation, Quick Ratio, Interest Coverage Ratio, ROA, and EPS have also influenced the Debt-to-Equity Ratio with moderate differences in the results between the two models. The Pooled OLS model treated all data points as a single cross-section, which may miss out on firm-specific effects. In contrast, the Random Effects model considers inter-firm variability but assumes that the unobserved effects are not correlated with the independent variables. Both the models reflected an enduring negative influence of leverage on financial health. However, in this, a better fit is delivered in Random Effects, accounting for the variations at cross sections.

Table 7: Residual Cross-Section Dependence Test

Test	Statistic	D.F	p-value
Breusch-Pagan LM	9.25	1225	0.7432
Pesaran scaled LM	0.58		0.5637
Bias-corrected scaled LM	0.42		0.6729
Pesaran CD	0.94		0.3471

Note: The table presents results from the Residual Cross-Section Dependence Test, where the null hypothesis is that there is no cross-section dependence (correlation) in the residuals.

Table 7 presents the results of the Residual Cross-Section Dependence Test. It shows that the fixed effects model did not reveal significant cross-sectional dependence since all p-values are above the conventional significance levels. This means that residuals were uncorrelated across the different cross-sections, affirming the appropriateness of the fixed effects model for this study. The absence of cross-sectional dependence enhances the robustness of the model in precisely delineating the relationship between financial health and capital structure in the pharmaceutical sector.

Findings and Suggestions

1. Based on available data, companies maintained an appropriate level of leverage; satisfactory profitability existed in the form of the Return on Assets, but some firms resulted in losses.
2. The high swing of the Interest Coverage Ratio confirmed profit-based returns for this case. However, only a few firms were doing well regarding interest payment management.
3. The correlation study indicated a strong negative correlation between the Debt-to-Equity Ratio and many other measures of financial health, including the Altman Z-Score, Market Capitalisation, Return on Assets, Quick Ratio, and Interest Coverage Ratio.
4. Several tests were conducted to identify the best model for the data, but the fixed-effects model was chosen as the most appropriate for the study at hand.
5. A significant inverse relationship was found between the Altman Z-Score and the Debt-to-Equity Ratio; that is, pharmaceutical companies in better financial health typically employ less debt financing.
6. In the Pooled OLS and Random Effects models, the Altman Z-Score has an extremely negative relationship with the Debt-to-Equity Ratio; better financial health correlates with lower leverage.
7. While both models showed a persistent negative effect of financial health on leverage, the Random Effects model, by incorporating cross-sectional variations, provided more nuanced insight.

Conclusion and Implications

The study concluded that financial health, as rated by the Altman Z-Score, had a significant adverse effect on the capital structure of pharmaceutical companies. Pharmaceutical companies with higher levels of financial stability relied less on debt and favored more conservative capital structures. The analysis indicated that even though control variables such as Market Capitalisation, Return on Assets, and liquidity ratios affected the Debt-to-Equity Ratio, the financial soundness of the enterprises was the paramount issue. This link was repeatedly found across many models, with the fixed effects model yielding the most precise and dependable results.

These results have significant implications for management and pharmaceutical industry investors. Companies should maintain sound financial health to reduce their reliance on debt and minimize financial risk. For investors, understanding a company's

financial health can provide important insight into its capital structure decisions and future risk levels. This knowledge can inform investors' strategies and alert them to organizations that manage their leverage well, avoiding exposure to financially shaky entities.

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Multifaceted Linkage between Women Entrepreneurship and Sustainable Development Goals: A Bibliometric Exploration

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Abstract

Women entrepreneurs play a critical role in molding a sustainable future. It emerged as a key driver of sustainable development by blending innovation with economic empowerment to achieve goals such as gender equality and economic growth. The heightening emphasis on accomplishing sustainable development goals has highlighted the critical role of women entrepreneurs in driving social, sustainable, economic, and environmental progress. The study aims to present an all-inclusive bibliometric analysis of women entrepreneurship and sustainable development goals. It aims to identify the prominent themes and studies in this area. The Scopus database was chosen to extract the dataset from 2000 to 2025 due to its strong reputation and credibility. A string of appropriate keywords was employed to search the papers in the title, abstract or keywords yielding 232 initial records. The search was purified to include articles from the subject areas, 'Business Management and Accounting, Social Science, Economics, Econometrics and Finance, Arts and Humanities, and Multidisciplinary. Finally, a filter to include articles only in English was also applied, and the final dataset used for the analyses comprised 219 records. It was found that sustainability, women entrepreneurship and sustainable development goals, sustainable entrepreneurship, fintech, and agriculture are the most prominent themes in this area, and the studies by Grimes, Bastian, and Raman are the most influential studies based on the citation counts. Moreover, the study identified the major SDGs in connection with women entrepreneurship, SDG 8 and SDG 5, and the study concludes by suggesting future research directions.

Keywords: Sustainable development goals, Sustainability, SDG8, SDG 5, Bibliometric analysis, Women entrepreneurship

1. Introduction

Sustainable Development Goals were established by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development, which focuses on addressing global challenges and fostering sustainable development (Adefare et al., 2024; Raman et al., 2022). Entrepreneurship accelerates economic growth by enhancing novelty in creations and innovative activities, generating employment, mitigating poverty, and encouraging healthy competition at the national and international level (Agarwal et al., 2020). It is widely acknowledged and agreed upon that the presence of women entrepreneurs is crucial for achieving equitable economic and social progress (Muo et al., 2023). Despite the recognition of women's significant role in entrepreneurship and economic growth, there is a limited acknowledgment of their contributions to the SDGs. There is a notable gap in the literature regarding the specific contributions of women entrepreneurs to sustainable development outcomes. The study highlights the need for more focused research that examines how women-led enterprises can impact various SDGs. The research problem includes the need to investigate the direct and indirect impacts of women entrepreneurship on various facets of sustainable development.

The elementary purpose of this study is to understand the existing scenario of the interconnectedness between women entrepreneurship and sustainable development goals SDGs by conducting a comprehensive bibliometric analysis, integrating studies from 2000 to 2025.

Research Questions

1. What are the prominent themes and studies associated with the research area?
2. What are the major SDGs in alignment with women entrepreneurship?
3. What are the future research trajectories?

The rest of this paper is structured as follows: the second section outlines the research methodology, which comprises database, keywords, and inclusion criteria. The third part encompasses the results and discussion. It consists of annual scientific production and citation of articles from the analysed collection. Then, the network and table showing the major clusters associated with the research area are shown. After that, the table showing the most influential studies depicting the major areas explored in the studies is being placed. Then, the conceptual structure showing the evolution of themes from 2006 to 2025 is presented. The fourth part entails the conclusion, and the fifth part suggests the future research directions.

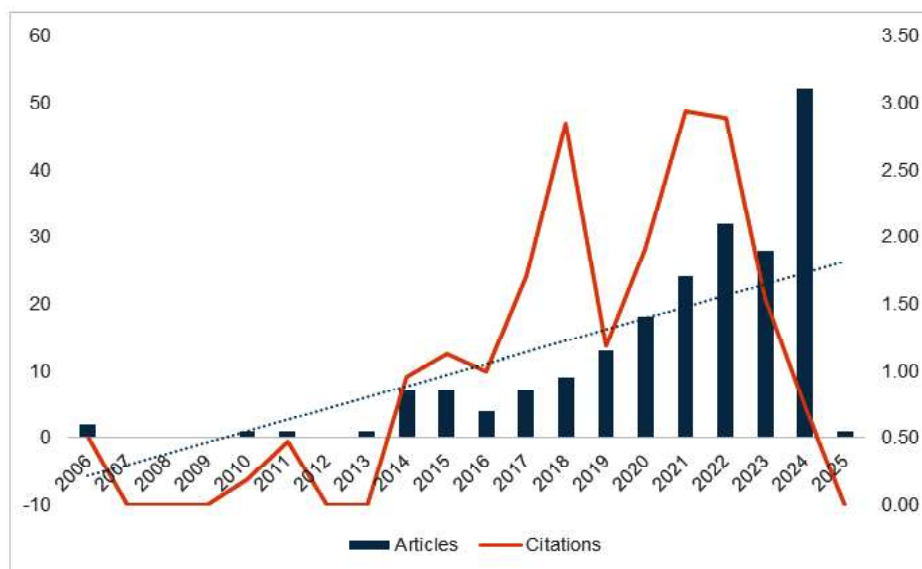
2. Research Methodology

2.1. Database and search strategy

The data that better reflects the information relevant to this study was retrieved from the Scopus database in January 2025. The Scopus database was chosen due to its strong reputation and credibility when compared to other databases like Google Scholar (Falagas et al., 2008). The Scopus repository has the power to exclude predatory journals (Paul et al., 2021). The data from the period 2000 to 2025 was analysed. This period recognises sustainable development goals as a major theme in academia. A string of appropriate search terms (“Women Entrepreneur*” AND “Sustainable Development Goals” OR “SDG” OR Sustainability OR “Global network*” OR “International Network*”) were employed to search the papers in the title, abstract or keywords yielding 232 initial records. The search was purified to include articles from the subject areas, ‘Business Management and Accounting, Social Science, Economics, Econometrics and Finance, Arts and Humanities, and Multidisciplinary, which accumulated 219 records. Finally, a filter to include articles only in English was also applied, resulting in 219 documents. The final dataset used for the analyses comprised 219 records. The methodology adopted uses the Biblioshiny application of the Bibliometric package version 4.4.2 (Aria & Cuccurullo, 2017).

3. Results and Discussion

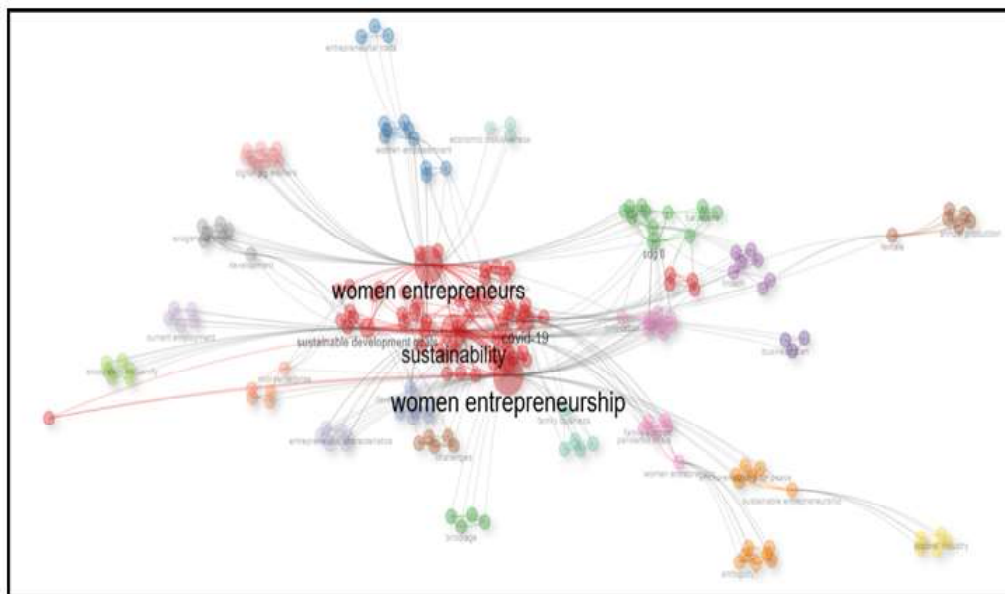
Figure 1: Annual Scientific Production and Citation of Articles



Source: Created by the researchers

Fig. 1 represents the scientific production and average citation of articles in a year from the analyzed collection of records. The annual scientific production shows an upward trend, with the greatest number of articles in 2024. The trendline is an indicator that the domain constantly gains scholarly focus and research interest. The average annual citations also show a zig-zag upward trend, which strengthens the domain's heightening significance. The overall growth of both parameters shows that interested academicians or scholars can explore this domain of research.

Figure 2: Network Visualization of the most Prominent Clusters



Source: Extracted from RStudio Version 4.4.2

Figure 2 represents the network visualisation of the most proficient clusters. The network clearly shows that women's entrepreneurship, sustainability, and sustainable development goals are the profound themes in the dataset.

Table 1: Major themes as per Betweenness, Closeness, and Page Rank Centrality

Words	Cluster Label	Betweenness Centrality	Closeness Centrality	Pagerank Centrality
Women Entrepreneurs	Women Entrepreneurs	5335.76	0.002	0.032
Sustainability	Women Entrepreneurs	4508.22	0.002	0.035
Women Entrepreneurship	Women Entrepreneurs	5694.26	0.002	36
Sustainable Development Goals	Women Entrepreneurs	1539.91	0.002	0.015
Emerging Economies	Women Entrepreneurs	515.926	0.002	0.007
Gender	Women Entrepreneurs	686.425	0.002	0.007
Agriculture	Women Entrepreneurs	30.639	0.002	0.004
Economic growth	Women Entrepreneurs	0.667	0.002	0.004
Entrepreneurial Orientation	Women Entrepreneurs	850.243	0.002	0.006
Sdgs	Women Entrepreneurs	243.287	0.002	0.005
Tourism	Women Entrepreneurs	148.192	0.002	0.006
SDG 8	SDG 8	1206.684	0.002	0.011
SDG 5	SDG 8	162.9	0.002	0.006
Fintech	Fintech	316.119	0.002	0.006
Sustainable Entrepreneurship	Sustainable Entrepreneurship	945	0.002	0.007

Source: Created by the researchers based on the information from RStudio Version 4.4.2

The popularity of an article is measured by its citation count, but its prominence is calculated by page rank centrality (Goyal & Kumar, 2021). Page rank centrality means the influence of a cluster based on its intellectual and structural connections with other eminent clusters. The higher the page rank, the greater the density and relevance of a cluster. In the same way, betweenness and closeness centrality also indicate the relevance of the clusters.

Figure 2 shows the major themes in the network, which are women entrepreneurs, sustainability, women entrepreneurship, and sustainable development goals. Considering the page rank, betweenness, and closeness centrality, the clusters that highlight the importance of SDGs in the context of women entrepreneurship are: (1) Women entrepreneurs; this cluster has high page rank values for key terms such as women entrepreneurship (0.036), women entrepreneurs (0.035), and sustainability (0.032). (2) SDG 8; this cluster includes themes like SDG 8 (0.011) and SDG 5 (0.006). (3) Sustainability; SDGs and sustainable entrepreneurship (0.007) are the related themes.

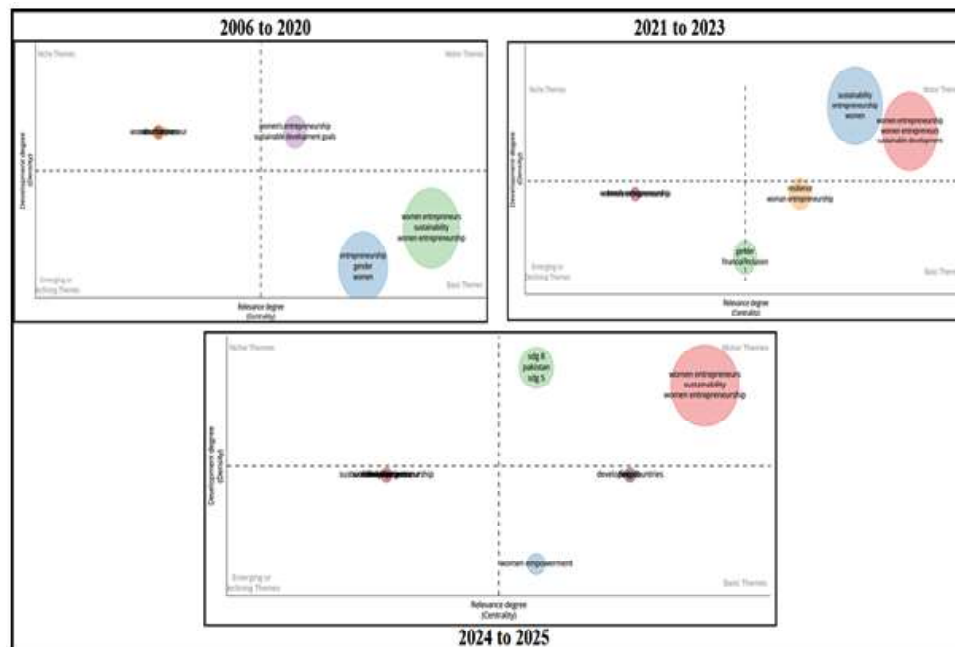
Table 2: Most Influential Studies

SL. NO	Title	Author	Central Focus	Year	TC	CPY
1	Positively deviant: Identity work through B Corporation certification	(Grimes et al., 2018)	The study develops an identity-based framework for describing heterogeneity in adopting sustainability certification among social entrepreneurs	2018	106	13.25
2	Gender Inequality: Entrepreneurship Development in the MENA Region	(Bastian et al., 2019)	The study crucially determines how country measures of gender inequality shape men's and women's entrepreneurial intentions, which were shown in the literature as excellent predictors of the establishment of new ventures.	2018	57	8.14
3	Women Entrepreneurship and Sustainable Development: Bibliometric Analysis and Emerging Research Trends	(Raman et al., 2022)	The study provides insights into the development of women's entrepreneurship research, including a new analysis through the sustainable development and the impact of the COVID 19 pandemic. Bibliometric	2022	56	14
4	Funding Challenges of Latin American Women Start-up Founders in the Technology Industry	(Kuschel et al., 2017)	This paper analyses challenges women startup founders face to secure funding in the technology industry.	2017	54	6
5	Gaining legitimacy through proactive stakeholder management: The experiences of high-tech women entrepreneurs in Russia	(Vershina et al., 2020)	This paper offers insights into the critical role played by stakeholder relationships for female-owned high-technology firms in their pursuit of the legitimacy they need to acquire	2017	9	4.72

6	Rural Women Entrepreneurs in Oman: Problems and Opportunities	(Ghouse et al., 2021)	the resources that, in turn, will lead to sustainable innovation and firm growth.	2021	52	10.40
7	Women-owned family businesses in transitional economies: Key Influences on Firm Innovativeness and Sustainability	(Gundry et al., 2014)	Challenges encountered by rural women entrepreneurs in Oman	2014	45	3.75
8	Technological Adaption and Open Innovation in SMEs: A Strategic Assessment of Women-owned SMEs Sustainability in Bangladesh	(Lingyan et al., 2021)	The study develops a model of the influences on innovativeness and sustainability in family firms	2021	43	8.60
9	Formalizing Women Entrepreneurs in Kathmandu, Nepal: Pathway towards Empowerment	(Karki & Mirela Xheneti, 2018)	The study explores the impact of technology adoption and open innovation in SMEs run by women entrepreneurs	2018	40	5
10	Impact of Artificial Intelligence and Industry 4.0-based products on Consumer Behavior Characteristics: A Meta-analysis Review	(Khan et al., 2022)	This paper investigates whether the formalisation of the entrepreneurial activities by women supports Sdgs through ensuring women empowerment and equality in the informal economy	2022	39	9.75

TC - Total Citation, CPY - Citation Per Year

Source: Created by the researchers

Figure 3: Conceptual Structure from 2006 to 2025 (Thematic evolution)

Source: Created by the researchers

The figure shows the thematic evolution of the research on women entrepreneurship and sustainable development goals. To add more granularity to the data, the themes have been divided into three time periods, keeping the author's keywords as the unit of analysis: 2006 to 2020, 2021 to 2023, and 2024 to 2025. The thematic evolution is represented in four groups in a two-dimensional space (i) motor theme: the most prominent theme which is superior in both density and centrality; (ii) basic theme: a relevant but not yet developed theme; (iii) niche theme: developed, but non-central themes; (iv) emerging or declining theme: themes that are neither relevant nor developed (Akarsu et al., 2023; Moral-Munoz et al., 2018).

While hovering over the three time periods, it can be seen that 'women's entrepreneurship, sustainability, sustainable development goals, and gender are some of the relevant themes that evolved year after year. In the first time slice from 2006 to 2020, sustainable development goals is present in the motor theme where the density and centrality are high. Sustainability and gender occupy the basic theme where there is relevance but no commendable development. Sustainability has been moved to the motor theme from the basic theme, which signifies its increased prominence. In the third time slice, the sustainable development goals have been evolved specifically as "SDG 5

(achieve gender equality and empower all women and girls) and SDG 8 (promote sustained, inclusive and sustainable growth”, full and productive employment and decent work for all). The thematic evolution derives the most connected sustainable development goals with women entrepreneurship.

3. Concluding remarks and limitations

Women entrepreneurship shows a multifaceted linkage with SDGs and is characterized by a synergistic relationship where empowering women entrepreneurs not only advances gender equality but also contributes to broader economic, social, and environmental goals. Women entrepreneurs predominantly contribute to the achievement of SDG 5 (Gender equality). Their participation in entrepreneurship not only contributes to SDG 5 but also accelerates social and economic growth and generates employment opportunities, thereby achieving SDG 8 (Decent work and Economic growth). The growing academic focus on this field, especially since 2017, highlights the increasing recognition of the role women entrepreneurs play in sustainable development through digitalisation, social entrepreneurship, and resilience.

The study undertook a comprehensive bibliometric analysis of women entrepreneurship and sustainable development goals. It identified the prominent themes and studies in this area. It was found that sustainability, women entrepreneurship and sustainable development goals, sustainable entrepreneurship, resilience, fintech, and agriculture are the most prominent themes in this area. The major themes were identified by analysing the Betweenness, Closeness, and Page Rank Centrality. Conceptual structure (thematic evolution) was also employed to find out the same. The studies by Grimes, Bastian, and Raman are the most influential studies based on the citation counts. Moreover, the study identified the major SDGs in connection with women entrepreneurship, SDG 8 and SDG 5, which were identified from the thematic evolution from 2006 to 2025. Finally, the study suggests future research directions.

Besides all these, the data was downloaded only from the Scopus database. There are many other repositories like Web of Science, Google Scholar, JSTOR, EBSCO, ScienceDirect, etc., wherein data would have been taken for much more comprehensive analysis. Moreover, the data about Keywords Plus was critical, and the cited references were completely missing. Therefore, the analysis employing such parameters was unable to be performed. An in-depth analysis of every individual document was not possible as there were plenty of missing values in the extracted files. The use of different parameters as the unit of analysis and different drawing methods shall affect the uniformity of the result.

4. Future research directions

The review of the literature shows that there has been limited focus on the exploration of women entrepreneurship within the context of emerging countries regarding how infrastructural and cultural constraints jive with sustainable development goals (Fauzi et al., 2023). During the time slice of 2021-2023, the themes of gender and financial inclusion were present at the midst of emerging and basic themes, which signifies its relevance though underdeveloped. However, these themes disappeared in the next time slice 2024-2025 which indicates a lack of academic interest in this domain. This demands the need for more penetrating works to integrate these themes into women entrepreneurship models (Rizvi et al., 2024).

SDG 8 (Gender equality)) and SDG 5 (Decent work and Economic growth) evolved as a theme during 2024-2025. Scholars need to drill deeper into the nuances of cross-sectoral linkages with SDGs. Research connecting women entrepreneurs to SDG progress in sectors like agriculture, education, and technology remain sparse (de las Heras-Pedrosa et al., 2024).

How collaborations between women entrepreneurs and other stakeholders, such as governments, NGOs, and private sector entities can add to sustainable development can be studied. Research should explore how women entrepreneurs are integrating sustainability into their business models by incorporating eco-friendly innovations and practices. Additionally, researchers can explore the role of social entrepreneurship in achieving sustainable development, as it is an emerging theme in this context.

Technology-driven research are always in the first place. Assessing how fintech and digital transformation can scale-up sustainable women-led enterprises in developing countries can gather scholarly focus (Cardella et al., 2020). Research should also explore how digital competence among women entrepreneurs can be further enhanced to foster innovation and contribute to sustainable business practices. In particular, how digital skills influence the scaling of sustainable business practices has not been deeply explored. On a broader perspective, digitalization can act as a catalyst for achieving SDGs. Hence, it is crucial to implement policies to enhance women's access to digital education and resources. This can be achieved by providing training and skill development programs, and by creating an environment that addresses the unique challenges faced by women entrepreneurs.

The future scope calls for more interdisciplinary research that integrates insights from various fields, such as economics, sociology, and environmental studies, to provide a holistic understanding of the role of women entrepreneurs in achieving sustainable development.

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this chapter.

Data Availability Statement

Data is available from the corresponding author on reasonable request.

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Transforming Grocery Retail for Sustainable Futures: A Hybrid Review of Industry-SDG Linkages

Discipline: Commerce

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Abstract

The retail grocery industry is essential to achieving the United Nations Sustainable Development Goals (SDGs), because it shapes sustainable patterns of production and consumption. The present study conducts a thorough analysis to investigate the changing relationship between the grocery sector and sustainability through a systematic literature review process. By tracking the historical development and significant turning points, the study illustrates how sustainable practices have been incorporated into grocery operations. A bibliometric study reveals significant research gaps and indicates dominant research trends, providing information about the little-known aspects of sustainability in the retail grocery trade. Hence, the study adopts a hybrid perspective incorporating bibliometric analysis and a framework (4W) approach to assess the linkage between grocery retail practices and the SDGs, bridging theoretical frameworks with practical implications. The 4W framework analysis explores the grocery industry's role in SDG 13 "Climate Action" and reveal lack of attention regarding to industry's contributions to mitigate climate change. The bibliometric findings indicate that corporate social responsibility, digital transformation, stakeholder engagement, and responsible management are the significant drivers of sustainability in the grocery sector. However, some research gaps exist, such as policy alignment, the role of AI and IoT in sustainability, and the stakeholder engagement models. This review underscores the need for interdisciplinary research and collaborative strategies to enhance the sector's contributions toward sustainable futures. By coordinating grocery retail practices with the SDGs, this study provides a ground plan for policymakers, academicians and practitioners with a path for promoting a sustainable retail grocery ecosystem.

Keywords: Grocery Retail, Sustainability, Sustainable Development Goals (SDGs), Climate Action.

Introduction

A significant obstacle in the business ecosystem in executing the sustainable development agenda is transforming the business mindset and perception towards novel sustainability practices, technology, and business models (Rosati & Faria, 2019; Sachs, 2012; Welford, 1998). Increased knowledge and comprehension of the connections between society, business, environment, social reality, technology and sustainable development are necessary in order to advance a sustainable future (Welford, 1998). Competitive opportunities and challenges, regulatory compliance and pressure from internal and external stakeholders may drive the adoption of more sustainable practices, technologies and business models (Belal, 2002; Elliot, 2013). Organisations must work with their external and internal stakeholders to perform ethically and sustainably in order to be acceptable in the society in which they operate (Freeman, 1994).

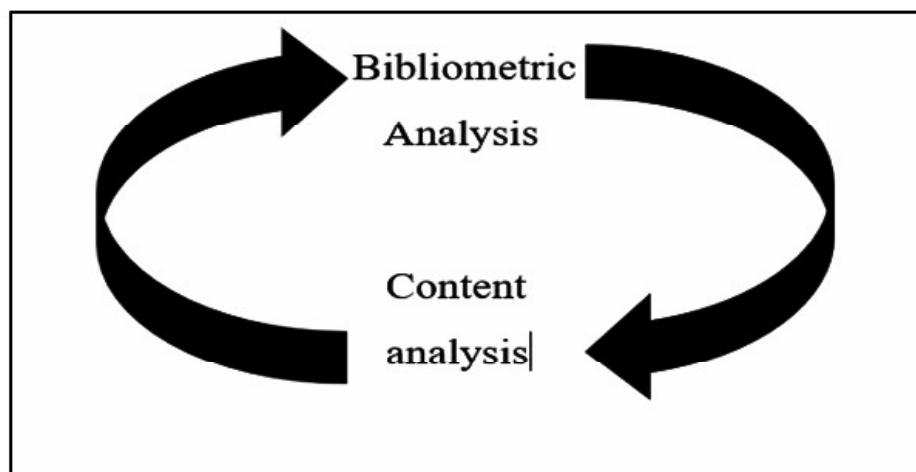
In retail, sustainability is becoming a norm rather than a trend. Retailers are novel in ways that incorporate their operations with environmental, social and governance (ESG) goals in 2025, driven by shifting customer expectations and the urgency of climate action on a global scale. The Sustainable Development Goals (SDGs) of the UN mention that every industry must act to combat climate change, minimise waste, and guarantee moral work standards. The retail industry is no exception. Adopting sustainability by retailers is about more than simply complying with regulations; it is also about satisfying the demands of today's conscientious customer, lessening their influence on the environment, and developing a robust business plan (Richard Hartshorne, 2025). From environmental preservation and social justice to economic development, the 17 SDGs offer a thorough framework for companies to match their operations with global goals (UN, 2015).



Source: <https://expleo.com/global/en/insights/blog/sdg-retail-green-innovation/>

Climate action (SDG-13) is the most significant goal as it pushes the retail grocery industry to implement sustainable business practices to minimise the environmental impact. Climate change is a great threat to the industry. It alters the supply chain networks, agricultural production and consumer behaviour, underscoring the need for preventive actions. To tackle these obstacles, grocery stores are already implementing low-carbon logistical systems, reducing greenhouse gas emissions, and incorporating sustainable energy solutions (Jones et al., 2016).

Despite the abundance of grocery reviews, none attempted to examine the linkage between the grocery sector and sustainability through a systematic literature review. Therefore, this study aims to use a hybrid review incorporating the framework review technique along with a bibliometric analysis (Lim et al., 2021) to explore the transition of the retail grocery industry by analysing the nexus between the industry and sustainable Development Goals. This review paper is structured as follows;



Source: Researcher's work

Research methods and procedure

There are various kinds of systematic reviews in the literature (Paul & Criado, 2020): structured review that examines the most widely used theories, notions and methodologies (Dhaliwal et al., 2020; Paul & Rosado-Serrano, 2019; Paul & Singh, 2017); reviews on framework or model development (Lim et al., 2021; Paul & Mas, 2020); meta-analysis reviews (Knoll & Matthes, 2017; Rana & Paul; Justin, 2019); theory-based reviews (Paul & Rosado-Serrano, 2019); framework-based reviews (Paul & Benito, 2018); hybrid reviews (Azeez & Aboobaker, 2024; Lim et al., 2021); and bibliometric reviews (Corrall et al., 2013; De Bakker et al., 2005; Donthu et al.,

2020; D Tunger et al., 2018; Massimo & Corodo, 2022; Subramanyam, 1982). The present study adopts a hybrid review incorporating both the bibliometric and framework-based (4Ws) review (Mamun et al., 2021; Paul & Criado, 2020) to offer the most thorough analysis of the nexus between the grocery retail industry and sustainable development goals. The bibliometric review technique is used because of its scientific ability to analyse and visualise the relationship between the research actors or constituents (authors, keywords and sources). The 4Ws framework strategy was also used since it enriches and broadens our current knowledge and draws comparisons between the existing literature based on the content and theories used, methodologies employed, and sectors and nations covered.

Numerous applied bibliometrics for content analysis and library science for scientometric analysis (Corrall et al., 2013). The bibliometric analysis allows for the visualisation of data and tracking of knowledge gained from the available literature. The only factor that affects the quality of analysis is data quality (De Rezende; Leandro Bolzan et al., 2018). The SALSA process was utilised in the study, which refers to a four-stage objective data analysis procedure that includes search, appraisal, synthesis and analysis (Papaioannou et al., 2010).

Table 1: SALSA procedure of the review

Stage	Process
Search	Database: 'Scopus' and 'Web of Science' Parameters used: 'Grocery' and 'Sustainability' or 'Sustainable Development Goals'
Appraisal	Selected input data: 985 documents (Scopus-171 Web of Science- 830)
Synthesis	R-Studio version 4.3.2 and 4W framework
Analysis	Bibliometric Analysis and Content Analysis

Stage1 (Search): During the search stage, the articles were sourced using Scopus and Web of Science as those are the two most renowned databases (Aghaei Chadegani et al., 2013). The primary goal of the study is to analyse the linkage between the retail grocery industry and Sustainable Development Goals to guide the industry into a sustainable future, so the parameters used were 'Grocery' and 'Sustainability' or 'Sustainable Development Goals'. The table presents the search query and string used in the search process.

Table 2: Document search query and search string

Database	Query and string
Scopus	(Title-Abs-Key ("Grocery") And Title-Abs-Key ("Sustainability") Or ("Sustainable Development Goals")) And (Limit-To (Subjarea , "Busi") Or Limit-To (Subjarea , "Soci") Or Limit-To (Subjarea , "Econ")) And (Limit-To (Doctype , "Ar") Or(Limit -To (Doctype , " Review")) And (Limit-To (Language , "English"))
Web of Science	(Title-Abs-Key ("Grocery") And (Title-Abs-Key ("Sustainability") Or ("Sustainable Development Goals")) And (Limit-To (Doctype , "Ar") Or(Limit -To (Doctype , " ReviewAr")) And (Limit-To (WoSCat , "Busi") Or Limit-To (WoSCat , "Soci") Or Limit-To (WoSCat , "Econ") Or Limit-To (WoSCat , "Mgt") Or Limit -To (WoSCat , "Interdisciplinary")) And (Limit-To (Language , "English")) And (Citatopmeso, "Mgt") Or Limit-To (Citatopmeso, "Eco") Or Limit-To (Citatopmeso, "climatechange") Or Limit-To (Citatopmeso, "sply chain &Log") Or Limit-To (Citatopmeso, "AI&MchnLearn") Or Limit-To (Citatopmeso, "Commu")) And (Limit-To (Language , "English"))

Stage 2 (Appraisal): Out of the 21593 documents from the Web of Science, our search was limited to journal articles and review articles (20532) in the domains of economics, management, business, social sciences, interdisciplinary or business finance (1936) considering only from the topics of management, economics, climate change, supply chain & logistics, AI and machine learning, and communication (831) and excluded the articles written in languages other than English (830).

Out of the 388 documents from Scopus, the search was restricted to journal and review articles in the fields of business, management & accounting, social sciences, and, economics, econometrics & finance (172) and considered only articles in English (171).

Following the application of the above filter, 830 articles from the Web of Science were extracted in plaintext format, and 171 articles from Scopus were extracted in

BibTeX format. R-Studio version 4.3.2 was used to merge the gathered files and eliminate 16 duplicates, and ultimately 985 articles were gathered for analysis.

Stage 3 (Synthesis): The selected input data of 985 documents was obtained for the bibliometric study. During the screening process, 12 documents were found to be about climate change, which is closely tied to the 13th sustainable development goal of “Climate Action.” As a result, we chose to use content analysis to examine those 12 documents.

Stage 4 (Analysis): For bibliometric analysis, the current study employed the R-studio of version 4.3.2 for data visualisation and network visualisation. For content analysis, we adopted the 4Ws structure to provide more insights into the linkage between the retail grocery industry and the 13th sustainable development goal of climate action.

Results and findings

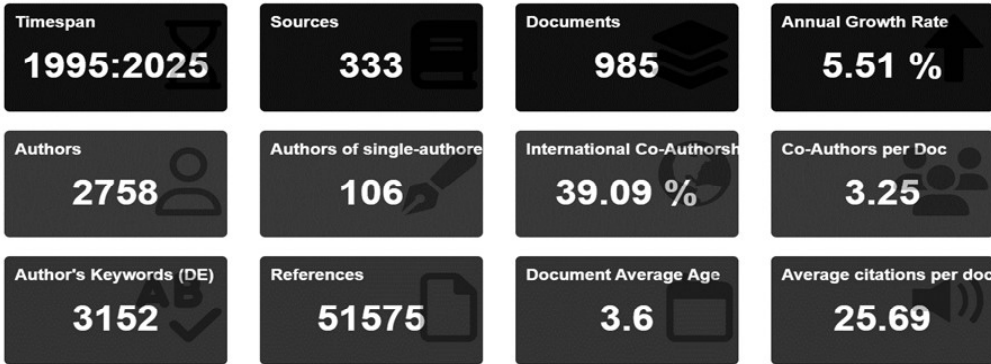
Bibliometric characteristics of the study

Bibliometric analysis is a quantitative research technique used to assess the influence, organisation and development of academic literature in a particular research area (Aria & Cuccurullo, 2017; Vallaster et al., 2019). This approach is recognised as a superior tool for literature reviews. It offers insights into how the research topic has evolved, identifies the most influential publications and spots the new trends in the selected research area (Corrall et al., 2013; Subramanyam, 1982). Researchers can map the intellectual structure of a domain systematically by using a variety of bibliometric techniques like citation analysis, co-citation analysis and keyword analysis to provide a comprehensive perspective that complements the traditional narrative review (Donthu et al., 2021).

Data Information

With an annual growth rate of 5.51%, 2758 authors published 985 papers in 333 journals between 1995 and 2025. A document's average age is 3.6 years, and its average citation count is 25.69. 106 publications are single-authored, according to the information figure, and the number of co-authors per document determines the level of author collaboration (3.25). There are 51575 references and 3152 author keywords in the collected data, demonstrating a broad range of domains in the research area.

Figure 1: Main information

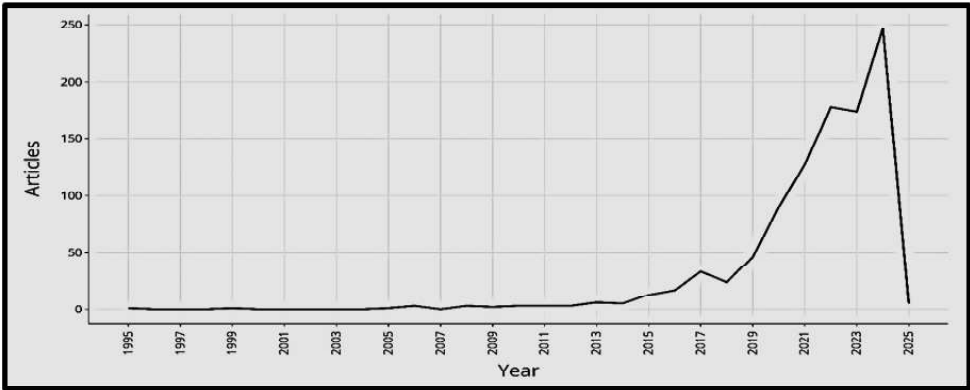


(Source: Biblioshiny of R-studio)

Annual Scientific Production:

There were very few scattered publications, and the research was minimal between 1995 and 2009, indicating that the research domain received little attention during those periods. The number of studies gradually increased between 2010 and 2015, depicting the significant understanding of sustainability that was probably driven by international initiatives such as the 2015 transition from millennium development goals to sustainable development goals. From 2016 onwards, research output climbed rapidly, reaching a peak of 247 publications in 2024. This highlights the sector’s increased emphasis on sustainability, mainly for the issues of the COVID-19 pandemic and climate change. A decline in 2025 with only 5 publications may be due to insufficient data or a possible slowdown in new research areas. The overall trend shows the critical role of the grocery industry in achieving SDGs is becoming more widely recognised.

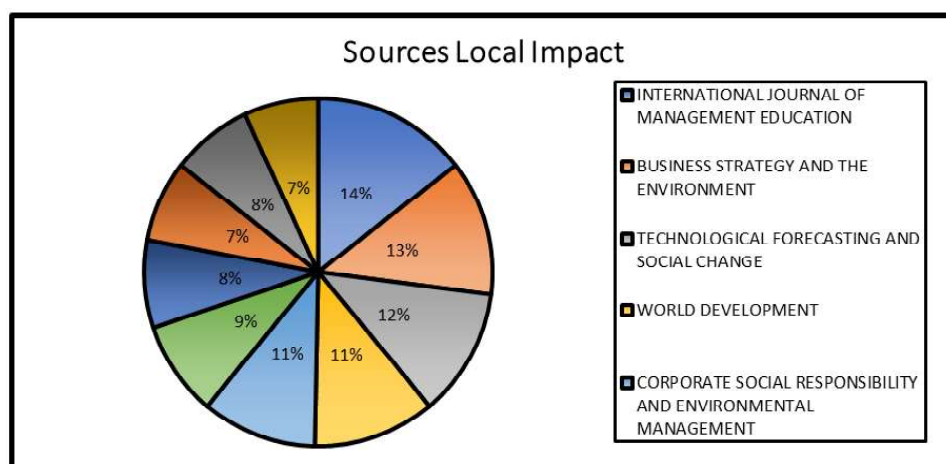
Figure 2: Annual production of publications



Most influential sources

The chart depicts the most influential journals in the research field based on their h-index. The findings revealed that the International Journal of Management Education, with an h-index of 23, is the most productive source in the research area of grocery and sustainability. The h-index highlights the articles' productivity and citation impact, and h-index 23 indicates at least 23 of the publications have cited the article at least 23 times (Anderson & Air, 2022). The core sources can be examined through Bradford's law as it distinct the journals into different zones based on how frequently and highly the articles are ranked (Loane & Bell, 2006). According to the rule, the most pertinent sources of research in grocery and sustainability are business strategy and the environment, which has 55 documents and corporate social responsibility and environmental management, which has 43 articles.

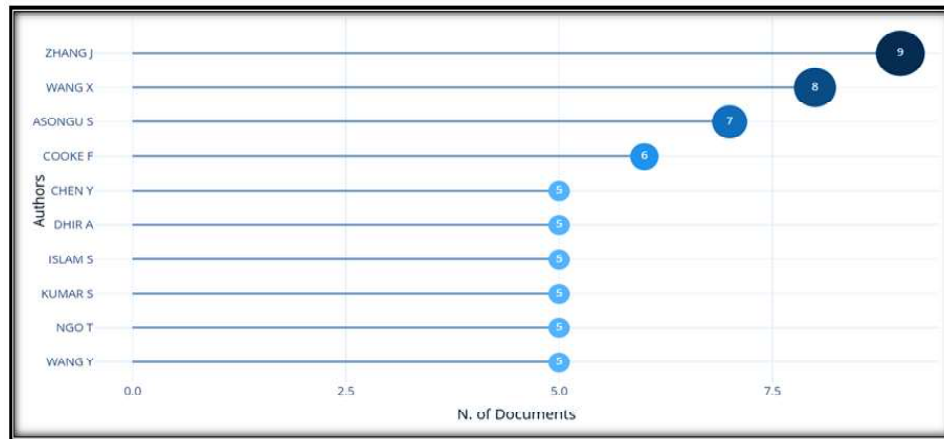
Figure 3: Most productive journals in the research



(Source: compiled by the researcher using Microsoft Excel)

Most relevant authors

With 9 publications, Jindong Zhang is the most productive author in the research field. Of them, "Changes in Human Wellbeing and Rural Livelihoods under Natural Disasters." is the most referenced paper (48 citations). This study empirically investigated the livelihood changes due to the 2008 Wenchuan earthquake and examined how those changes can recover human well-being (Yang et al., 2018a). Simplicio. A. Asongu (h-index-6) is the most pertinent author based on the local impact, and Francesco Rosati on the basis of citation count (92 citations).

Figure 4: Most productive authors

(Source: Biblioshiny of R-studio)

Most cited documents

Highly referenced publications are always revolutionary in the field, lay the foundation for further research, and offer more insights into the existing knowledge (Azeez & Aboobaker, 2024). Table 3 examines the seminal papers and contributions in the fields of grocery and sustainability. The results show that the paper titled “Achieving the United Nations Sustainable Development Goals: An Enabling Role for Accounting Research,” with 478 citations, is the most referenced article in the research area. The top cited documents recognise the world’s best authors, which ranks their Scopus citation records in the top 1% in their respective fields (Holmqvist, 2004). The most influential work specifies the role of academic accounting in achieving the United Nations Sustainable Development Goals by using improved comprehension, analysis, and advancement of accounting theory, practice and policy (Bebbington & Unerman, 2018). The other seminal papers are “Modelling and measuring sustainable well-being in connection with the UN Sustainable Development Goals,” with 416 citations (Costanza et al., 2016) followed by “Sustainable Development Goals and Inclusive Development,” with 381 citations (Gupta & Vegelin, 2016).

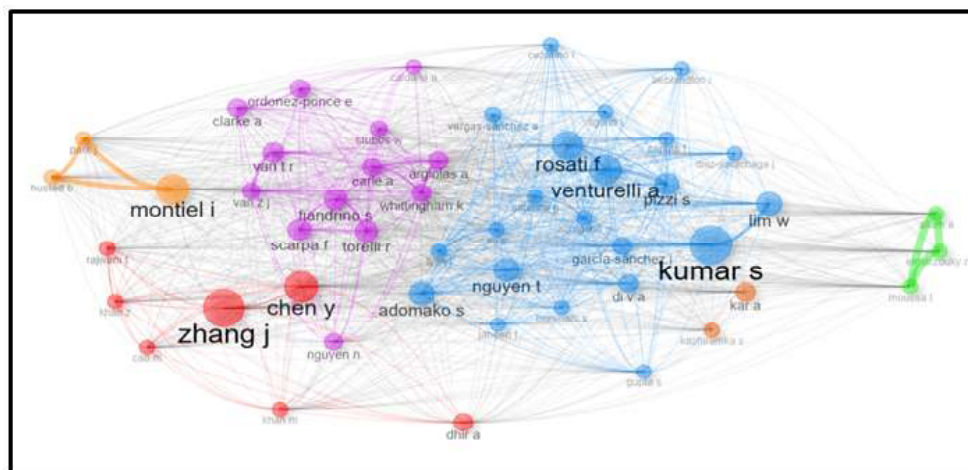
Table 3: Top referenced articles

SLNo	Title	Author(s)	Total Citations	TC per Year	Reference
1	Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research	Jan Bebbington, Jeffrey Uneman	478	59.75	(Bebbington & Uneman, 2018)
2	Modelling and measuring sustainable well-being in connection with the UN Sustainable Development Goals	Robert Costanza, Lew Dalyh, Lorenzo Fioramonti, Enrico Giovannini, Ida Kubiszewski, Lars Fogh Mortensen, Kate E. Pickett, Kristin Vala Ragnarsdotti, Roberto De Vogli, Richard Wilkinson	416	41.60	(Costanza et al., 2016)
3	Sustainable development goals and inclusive development	Joyeeta Gupta, Courtney Vegelin	381	38.10	(Gupta & Vegelin, 2016)
4	Inequality, ICT and financial access in Africa	Vanessa S. Tchamyoua, Guido Enreygers, Danny Cassimonc	373	53.29	(Tchamyou et al., 2019)
5	New challenges for corporate sustainability reporting: United Nations' 2030 Agenda for sustainable development and the sustainable development goals	Thomas A. Tsalis, Kyveli E. Dimitrios Malamatienou, Koulouriotis, Ioannis E. Nikolaou	293	48.83	(Tsalis et al., 2020)
6	Green Human Resource Management and Employee Green Behavior: An Empirical Analysis	Richa Chaudhary	269	44.83	(Chaudhary, 2019)
7	Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting	Francesco Rosati, Lourenço Galvão Diniz Faria	261	37.29	(Rosati & Faria, 2019)
8	Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals	Fátima Annan-Diab, Carolina Molinari	251	27.89	(Annan-Diab & Molinari, 2017)
9	A new fuzzy multi-criteria framework for measuring sustainability performance of a supply chain	Ismail Erol, Safiye Sencer, Ramazan Sari	240	16.00	(Erol et al., 2011)
10	Sustainability and development after COVID-19	Edward B. Barbier, Joanne C. Burgess	222	37.00	(Barbier & Burgess, 2020)

Bibliographic coupling of authors

The bibliographic coupling analysis identifies significant contributions to the study of SDGs. The result demonstrates three major clusters in the research field. Cluster 2, related to the theme of corporate social responsibility and sustainability, is the most prominent with writers such as Francesco Rosati (9.77) and Pizzi S (11.34). Cluster 3 includes authors like Van Z J (3.12) and Van T R (3.37), who concentrate on specialised content like the 2030 Agenda, and Cluster 1 includes Cao M (0.83) and Rajwani T (1.06).

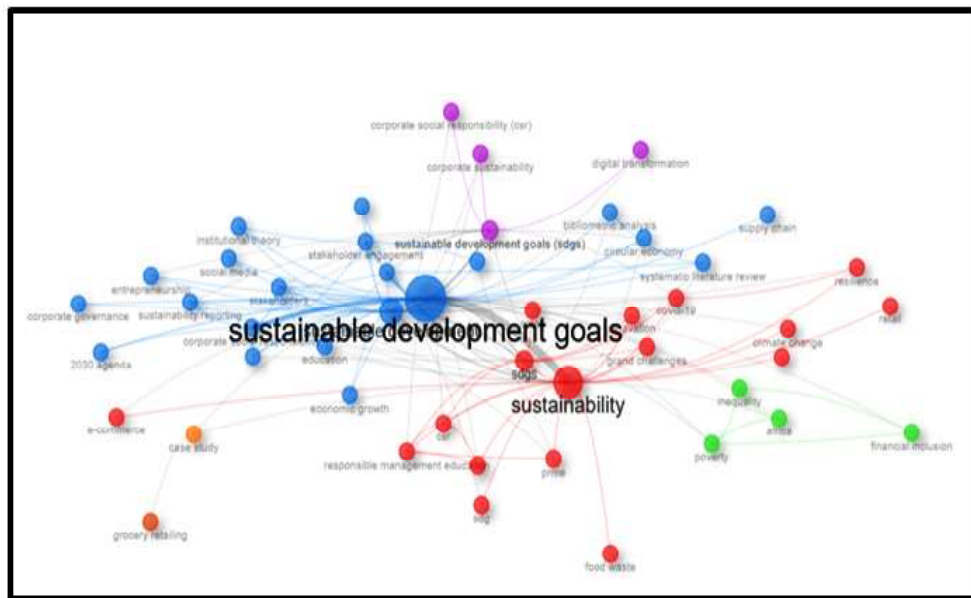
Figure 5: Author clustering



(Source: Biblioshiny of R-studio)

Keyword analysis

Research on grocery retailing is scarce, according to the keyword analysis, mainly when it comes to how it relates to the Sustainable Development Goals (SDGs) and Climate Action (SDG 13). The analysis table shows the proximity of grocery retailing as 0.007, indicating that little attention is given to the industry's involvement in Sustainable Development Goals, especially in achieving climate objectives. Overall, sustainability and sustainable development goals are the central themes in the field as they have the highest betweenness and closeness. Six clusters were obtained from the keyword occurrence network. Cluster 1 focuses on SDGS, Corporate Social Responsibility and Responsible Management Education. Cluster 2 includes the broader socio-economic and environmental dimensions. Clusters 3, 4, 5, and 6 concentrate on emerging and niche themes such as equity. Inclusion, corporate sustainability and grocery retailing.

Figure 6: Keyword occurrence

(Source: Biblioshiny of R-studio)

Content Analysis

On the basis of SDG 13 ‘Climate Action’, this section offers a comprehensive review of 12 documents that are filtered out from the collected data by considering only the keyword “climate change” by adopting 4Ws (what, why, where, and how) framework review of systematic literature review method. The current stage of the paper analyses the following questions;

- “What” focuses on the basic content of the research?
- “Why” highlights the need to explore the study?
- “Where” demonstrates the context of the study?
- “How” represents the future research avenue?

Table 4: 4W framework of the review

Document Title	What	Why	Where	How
Linking disaster reduction, climate change and Sustainable Development Goals (Kelman, 2017)	An editorial explores how the Paris Agreement is related to disaster risk reduction and sustainable development goals.	To find out the parallels and differences in the structure, legal contexts and implementation mechanisms of the Paris Agreement, Sustainable Development Goals and Sendai framework for disaster risk reduction.	Not specified	An in-depth study of the three agreements is needed to improve the activities for further growth,
Framing vulnerability and coffee farmers' behaviour in the context of climate change adaptation in Nicaragua (Quiroga et al., 2020)	Analyse the vulnerability and adaptive capacity of coffee producers to climate change by examining the farmers perception.	For mitigation precautions, farmers perceived capacity should be assessed to know whether they are capable of adapting the vulnerabilities due to climate change.	Nicaragua	Further study can explore the role of pests and diseases in the adaptive capacity perceptions.
Resilience and the role of equids in humanitarian crises (Clancy et al., 2022)	Exploring the involvements of working equids in humanitarian crises like war, conflict, drought, climate change and natural hazards.	Working equids are vital at the time of crisis to support vulnerable people in low to middle-income countries.	UK	Future studies may explore on resilience building and disaster mitigation for vulnerable communities
Local Authorities Acting Globally for Sustainable Development (Gkaute, 2016)	Review the article on the role of local authorities, local actors and drivers in global interventions.	To implement the SDGs properly the role of local bodies and authorities needs to be considered.	Not specified	Practical study on how the voice of local authorities can strengthen the international deliberations and decision making
Learn from the Past, Prepare for the Future: Impacts of Education and Experience on Disaster Preparedness in the Philippines and Thailand (Hoffmann & Muttarak, 2017)	Analyse the role of education in disaster preparedness	Preparing for a disaster can minimize possible losses and damages from natural hazards.	UK	Further study in the assessment of the quality of schooling and curriculum for promoting desirable behaviour on natural hazards
Impact and adaptation of south-east Asian farmers to climate change: conclusions and policy recommendations (Kurukulasuriya & Mendelsohn, 2017)	Quantitative analysis of climate sensitivity on crop net revenue and predicting the future climate change scenarios based on those values.	Need for the prediction of climate scenarios, which is very fruitful to southeast Asian farmers for their crop production.	Asia	Studies on the effect of climate change on farmers from the rest of the world.
Data interoperability for disaster risk reduction in Europe (Migliorini et al., 2019)	Case study on data interoperability in disaster risk reduction	Need for reducing barriers to disaster risk reduction due to the wide array of data availability	Europe	More research on evidence-based policy-making
Preferences of vulnerable social groups for ecosystem-based adaptation to flood risk in Central Vietnam	Quantitative analysis on differences in vulnerability to flooding and preferences in	Need to support communities in flood by considering ecosystem-based adaptation.	Vietnam	Studies on accounting of different EBA projects in order to reduce the flood risk

(Hagadolom et al., 2021)	Ecosystem-based adaptation			
What is the post-2015 development agenda? A look from the underlying disaster risk drivers (Sarmiento, 2018)	By applying the theory of change, this study explores the three post-2015 Agenda on the underlying risk drivers.	Need to understand the changes when the three 2015 agendas integrate.	Paris	Consider more changing indicators for deeper insights into the SDG Agenda 2015
Risk Perception in a Multi-Hazard Environment (Sullivan-Wiley & Short Gianotti, 2017)	Analysing the environmental hazard risk perception in multi-hazard context in Eastern Uganda	To provide risk understanding and risk perception for preventive actions in communities.	Uganda	How the farmers balance and prioritise protective action against risk.
The effectiveness of soft law in international environmental regimes: participation and compliance in the Hyogo Framework for Action (Wanner, 2021)	An empirical investigation of Hyogo framework of action on disaster risk reduction related to the effectiveness of a specific soft law regime.	Necessary to review and modify the concepts of participation and compliance that come from the evaluation of hard law regimes	Paris	Application of Sendai framework as it is essential for the effectiveness of any of the regimes
Changes in Human Well-being and Rural Livelihoods Under Natural Disasters (Yang et al., 2018)	An empirical analysis of livelihood changes in post 2008 Wenchuan earthquake	In order to guide management intervention for sustainable development after natural disasters	China	More interdisciplinary studies by using vast data on how disasters alter livelihood activities, which in turn impact human well-being

(Source: Compiled by the researcher)

Conclusion and Discussion

The grocery industry is undergoing a major shift due to the growing importance of sustainability considerations and are compelling to match their business operations with the worldwide Sustainable Development Goals (SDGs). This paper explores the linkage between grocery retailing and the Sustainable Development Goals as the industry transforms to achieve a sustainable future. It also identifies the developments in the research area by utilising a hybrid review of systematic literature review methods incorporating bibliometric analysis and content analysis with a strong emphasis on SDG 13(Climate Action). Articles with the term's 'grocery' and 'sustainability' or 'Sustainable Development Goals' were obtained from Scopus and Web of Science, and merged using R-studio.

The findings revealed that the research field is significantly increasing over time. and 2024 is considered the peak year for publications with a great focus on the themes of COVID-19 and Corporate Social Responsibility. However, the integration of the grocery industry within sustainability research is low and points to a critical research gap. The most influential authors, sources and documents are mapped, revealing the significance of sustainable practices in the recent retail ecosystem. Content analysis using the 4Ws structure was also carried out in the study for deeper insights into the sector's linkage with Climate action. For this, 12 documents were obtained from the

gathered data by including the keyword 'Climate change' and excluding other related terms. From the analysis, it is evident that India lacks papers on grocery retailing and climate action, and most of the papers are related to the 2015 SDG Agenda.

Limitations

- We only looked at sources that were accessible through Scopus and Web of Science, excluding the other significant databases, including Google Scholar, JSTOR, EBSCO, Science Direct, and others, which would have been used for a far more thorough examination.
- In this study, articles were only analysed. Other materials that were less likely to undergo peer review, such as book chapters, reports, and conference proceedings, were removed (Volkman et al., 2012).
- Non-English articles are not included in the present study, which would be difficult for readers who do not speak English.
- The analysis only considers the bibliometric and content analysis, excluding other systematic literature review methods. Future researchers can focus on other approaches to the systematic literature review method.

Future research avenues

- Exploring the role of grocery retailing in advancing sustainability in developing regions most affected by climate change
- More investigations are essential to promote innovative solutions for reducing carbon footprints, like adopting low-carbon logistics, renewable sources of energy and sustainable packaging.
- Investigating the role of digital technologies like Artificial Intelligence and the Internet of Things in enhancing sustainability in the retail grocery trade.
- Future researchers can develop holistic frameworks that integrate social, economic and environmental dimensions within the grocery retail sector.

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Farmer Producer Organisations as Collective Action Model: Evidence from Kerala

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Abstract

In India, various forms of collectivisation among farmers exist, including co-operatives and companies, which are collectively categorised under the broad term 'Farmer Producer Organisations' (FPO). FPOs are farmer-led business collectives that have gained prominence as instruments for empowering the economic and social position of small and marginalised farmers in India. While several collectives models, especially in sectors such as dairy, handloom, and poultry have demonstrated notable success, many FPOs continue to face significant existential issues. Existing studies have not been able to identify the factors affecting performance and proper functioning of FPOs. To address this gap, present study adopts a mixed-method approach, combining qualitative insights from Focus Group Discussions with farmers and quantitative Primary data were collected through structured interview schedule. Three FPOs promoted by different agencies were selected randomly to capture institutional diversity. The study identifies key enabling and challenging factors, links these findings with the existing literature, and conducts a Critical SWOT analysis of FPOs to assess performance determinants. The insights generated are expected to benefit a wide range of stakeholders – including FPOs members, Board of directors, funding agencies like NABARD, SFAC, Banks, and capacity building organizations by informing strategies aimed at strengthening the sustainability and effectiveness of FPO.

Keywords: Farmer Producer Organisation, Farmer Collectives, Farmer Producer Companies, Challenges, Sustainability, Performance, SWOT Analysis

Introduction

In a developing country like India, agriculture plays a cornerstone for the economic development of the nation (Motdhare et al., 2024). According to the 11th Agricultural Census in India, more than 80% of total landholdings are held by small and marginal farmers (Bharti & Kumari, 2024b). The size of the landholdings has consistently fragmented due to various reasons, which may seriously affect the ability to earn profit from economies of scale (Kumari et al., 2023). In order to protect the farmers from the negative effects of competitive market and increase their income, Govt of India, Ministry of Agriculture and Farmers Welfare and the Department of Agriculture and Cooperation introduced the concept Collectivisation of Farmers. Farmer Producer Organisations identified as best collectivisation Model for Small and Marginal Farmers (Priyanka & Jayasankar, 2024). Through FPOs the bargaining power of farmers gets better by pooling resources and linkage with market (Baruah et al., 2022) access to technology, high quality inputs (Gautam & Mallaiah, 2024). It facilitates a room for small farmers to take institutionalised collective action for their farm enterprises (Acharya et al., 2023; Bijman & Wijers, 2019). FPOs are started to ensure better income to the farmers through the organisation of their own (Jose, 2024). The Government of India has acknowledged the significant potential of Farmer Producer Organizations. In line with this, In 2020 the Ministry of Agriculture and Farmers Welfare has declared a plan to establish 10,000 new FPOs in the coming five years, with implementation support from SFAC, NABARD, and the National Cooperative Development Corporation (NCDC) (Govil & Neti, 2024).

FPOs help to enhance agribusiness opportunities of the economy and achieve economic development. Even though many studies reported the success factors of FPO, there have been studies that noted the flip side of FPOs. Many FPOs are facing existential issues (Suresh et al., 2024). With the rapid expansion of FPOs, ensuring their quality has become a critical concern. In this context, the present study aims to formulate appropriate measures to assess FPO performance based on the interview conducted with stakeholders of FPO. Findings of this study compared with relevant literature and published reports. Hence a critical SWOT analysis would help the key stakeholders of FPOs to systematically promote the number of FPOs in India. To understand how Farmer-Producer Organisations operate, a SWOT analysis was conducted, reflecting the views of farmers and various stakeholders on what aspects of FPOs are effective and which areas require attention (Anand et al., 2023). The remaining part of this article includes Literature Review, Research methodology, Results and Discussion in which detailed description of each FPO selected for the study mentioned and Demographic characteristics of beneficiaries of FPO included. Critical SWOT analysis of FPO added. And article ended up with Conclusion.

Literature Review

In 2000 a committee led by Alagh recommended the concept of Producer Organisation in India. A new “part IX A” for “Producer companies” were incorporated to Companies Act, 1956 in 2002 (Jose, 2024). As per this amendment Producer Organisations are any legal entity formed by primary producers like farmers, artisans, fishermen, weavers etc (Suresh & SS, 2024). The concept behind new-gen cooperative is to make them more income-generative and capable of taking risk for their business growth. Equal allocation of voting right among members helps to maintain unity in shared goals. They follow a formal governance structure that fosters member cooperation and effectively addressing the requirements of the modern agricultural value chain (Waring et al., 2022). Over the past decade, the concept of Producer Company has gained significant acceptance (Mourya & Mehta, 2021).

First the concept of ‘Farmer Producer Organisation’ was emerged in developed nations. In India committee led by the economist Dr. Y K Alagh first recommended the concept of Producer Organisation in 2000 by retaining the cooperative principle of ‘one vote and one share’. In 2002, The Companies Act of 1956 was amended by inserting ‘Part IX A’, introducing a new form of corporate entity known as ‘Producer Companies’ (Radadiya & Lad, 2024). FPOs were permitted to register as companies under the Companies Act, 2013 and can operate along the principles of a Profit driven firms. These entities represents farmer owned agri-businesses that originated as informal collectives of small and marginal farmers. FPOs sometimes known as Farmer Producer Companies (Anamika et al., 2021). According to this act only primary producers are allowed to do producer business. Which means a non-producer cannot be become a member in producer organization. In India most importantly the two nodal institutions that support FPOs are Small Farmers Agribusiness Consortium (SFAC) and National Bank for Agriculture and Rural Development (NABARD) (Bharti & Kumari, 2024a). These institutions assist the farmer collectives by providing monetary support and managerial guidance for the formation of FPOs. Besides this, many FPOs are self-supported by NGOs or Progressive rural youth. According to NABARD Producer Organisations as a legal entity formed by primary producers like farmers, artisans, fisherman etc. if the members of such entity are farmers we called it as Farmer Producer Organisations (Malik & Kajale, 2024). FPOs support the producers for the production, harvesting, procurement, processing, grading, pooling, selling and marketing of their products. ‘Farmers Honey Bee India Producer Company Ltd.’ was the first producer company registered in India in June 6, 2003.

Research Methodology

The present study was conducted in Kerala, with districts from the southern, central, and northern regions purposively selected based on the presence of a higher number of Farmer Producer Organisations (FPOs) promoted by diverse agencies. To ensure representativeness across institutional variations, three FPOs were selected: Neeloor Producer Company Limited (promoted by Neeloor Service Cooperative Bank), Shreyas Tribal Farmer Producer Company Limited (promoted by the Spices Board of India), and Onattukara Coconut Producer Company Limited (promoted by the Coconut Development Board). These organisations reflect different commodity bases, geographical contexts, and promoting institutions, thereby offering a holistic understanding of FPO functioning in the state.

The study was primarily based on primary data collected directly from member farmers. A total sample of 90 respondents was selected, comprising 30 randomly chosen members from each of the three FPOs. Data were gathered using a structured interview schedule, which was designed to capture socio-economic characteristics, organisational participation, perceived benefits, challenges, and members' assessment of FPO performance. All interviews were conducted in Malayalam, the respondents' native language, to facilitate clear communication and enhance response accuracy. The researcher personally interviewed each respondent, which enabled deeper engagement, improved quality of responses, and allowed direct observation of member perceptions and field realities. Responses were carefully recorded, and the collected data were thoroughly checked and cross-checked to ensure reliability and consistency.

A cordial and non-threatening interview environment was maintained throughout, encouraging respondents to express their opinions freely. In addition to primary data, secondary information from relevant literature, reports, and official documents was incorporated to strengthen the analysis and support the interpretation of findings. The collected data were tabulated and analysed using percentage analysis to understand demographic characteristics and examine the effectiveness of FPOs in enhancing farmer empowerment.

Results and Discussion

In the results and discussion part, include a demographic profile of the beneficiaries of the three selected FPOs. Findings integrate interview responses, Focus Group Discussion and secondary literature to offer a proper understanding of FPO functioning in Kerala and based on that, SWOT analysis of performance of FPOs were listed.

Demographic Characteristics of FPO beneficiaries (N=90)

Sl No	Variables	Category	Frequency	Percentage
1	Age	Below 25	0	0
		26-50	30	33.3
		51-75	40	44.4
		Above 75	20	22.2
2	Education	Illiterate	10	11.1
		Primary School	28	31.1
		Middle School	30	33.3
		High School	10	11.1
		Graduation	12	13.3
3	Annual Income	Low (Up to 1lakh)	30	33.3
		Medium (1-3lakh)	50	56
		High (Above 3lakh)	10	11.1
4	Farming Experience	Upto 10 yrs	10	11.1
		10-20yrs	40	44.4
		Above 20yrs	40	44.4
5	Farm Size	Marginal farmer (less than 2.50 acre)	35	39
		Small Farmer (2.50 to 5.00 acre)	40	44
		Big Farmer (above 5.00 acre)	15	17

Interpretation of Variables**Age**

The age distribution of FPO beneficiaries indicates that participation is concentrated among middle-aged farmers. A majority belong to the 51–75 years age group (44.4%), followed by those aged 26–50 years (33.3%), while 22.2% are above 75 years, and no respondents fall below 25 years. This pattern suggests that FPO membership is primarily driven by experienced and older farmers who are more actively engaged in farming activities and decision-making processes. The absence of youth indicates limited involvement of younger generations in FPO structures, highlighting a potential gap in youth mobilization for future sustainability of the organizations.

Education

The educational profile of respondents shows a mixed literacy level, with most having basic schooling. About 33.3% of the beneficiaries completed middle school, and 31.1% studied up to primary school, while 13.3% attained graduation. Meanwhile, 11.1% are illiterate, and another 11.1% completed high school. This indicates that although a portion of FPO members possess adequate educational exposure, many still rely on practical knowledge rather than formal education. Such a distribution underscores the need for continuous training and capacity-building initiatives to strengthen managerial and market-related competencies among FPO members.

Annual Income

The income distribution reveals that the majority of the beneficiaries fall under the medium-income category (1–3 lakh), accounting for 56% of respondents. About 33.3% belong to the low-income group (up to 1 lakh), while only 11.1% fall into the high-income category. This suggests that FPOs are largely serving small and economically vulnerable farmers who depend heavily on collective mechanisms to improve their livelihood conditions. The dominance of medium- and low-income participants also implies that FPO interventions have the potential to significantly uplift the economic status of marginal and small farmers through better market access and price realization.

Farming Experience

A considerable proportion of FPO beneficiaries have substantial experience in farming. Farmers with 10–20 years of experience and those with more than 20 years form equal shares, each contributing 44.4% of the total. Only 11.1% of members have less than 10 years of experience. This reflects that FPOs are predominantly composed of seasoned farmers who possess deep knowledge of agricultural practices and rural markets. Their experience makes them valuable contributors to collective decision-making, although the relatively low presence of new or first-generation farmers may signal a need to attract younger entrants into agriculture and strengthen future membership.

Farm Size

Analysis of farm size shows that 44% of respondents fall under the small farmer category (2.5–5 acres), while 39% are marginal farmers with less than 2.5 acres of land. Only 17% qualify as big farmers with more than 5 acres. This distribution highlights that FPOs are primarily composed of small and marginal farmers, who are traditionally constrained by limited resources, low bargaining power, and poor market access. Their higher representation indicates that FPOs are playing an important role in collectivizing smallholder farmers to enhance economies of scale, reduce transaction costs, and improve access to inputs and markets.

Performance of Farmer-Producer Organisations

1. Shreyas Tribal Farmer Producer Company Limited (STFPC)

STFPC is a private Company established in 2017 in Wayanad district of Kerala. Although the project was initially designed to enhance the livelihood security of tribal communities through farming, Shreyas soon realized that higher production did not automatically result in better income for the farmers. This was mainly because middlemen in the region-controlled prices, which reduced fair return of farmers even though the yield is good. Generally tribal farmers who are less educated and lacked strong organizational support, were unable to bypass these intermediaries and sell their produce directly. Recognizing that involving farmers in the governance of an institution could strengthen their capacities, the NGO began to seriously consider forming a Farmer Producer Company (FPC) to ensure better income and long-term sustainability for the producers. As a result, the FPC took up procurement, processing, and marketing of products from its tribal farmer members. Several board members received training from NABARD on agricultural commodity marketing.

Members of the FPC now benefit from market support, as well as technical training offered by agencies such as NABARD, Krishi Vigyan Kendra (Wayanad), Indian Institute of Spices Research (IISR), Calicut, and the Department of Agriculture. The organisation also arranged exposure visits and financial literacy programmes. Local trade fairs were organised to promote member products, and efforts are underway to provide life insurance coverage to all members through a collaboration with a public sector insurance company.

2. Neeloor Producer Company Limited

Neeloor Producer Company Limited (NPCL), established in 2006 as a collective initiative of over 500 farmers and promoted by the Neeloor Service Cooperative Bank with support from NABARD, has evolved into one of the most prominent and functional FPOs in Kottayam district. Its performance over the years reflects a combination of strong institutional backing, member cohesion, and a clear value-chain focus. Situated in Neeloor—a hilly, agrarian village in the Pala region—NPCL emerged in response to farmers' need for better market access, organised value addition, and income stability. Interviews with farmers and Board members indicate that NPCL's performance is rooted in its ability to mobilize farmers around a common commodity, ensure transparency in operations, and deliver measurable benefits to its shareholders.

A major strength of NPCL lies in its commodity specialization, with jackfruit positioned as the primary value-chain activity. The company has successfully developed a range of value-added products such as dried jackfruit, jackfruit powder, halwa, and

kumbil appam, all produced without chemical preservatives. This focus has created a stable identity for NPCL in the regional market and has enabled the organisation to move from selling raw produce to capturing higher margins through processing. Interviews reveal that farmers benefit from assured procurement, reduced exploitation by middlemen, and opportunities for training in post-harvest handling. The establishment of basic processing facilities and storage infrastructure has further strengthened NPCL's capacity to maintain quality consistency and supply reliability.

Beyond product diversification, NPCL's performance is reflected in its support systems for farmers. The organisation conducts regular training programmes, capacity-building workshops, and exposure visits with assistance from NABARD and other agencies. These initiatives have enhanced members' technical knowledge, improved farming practices, and promoted the adoption of value-addition techniques at the household level. Financial inclusion services—including linkages with banks, assistance in availing credit, and guidance on financial management—have also contributed to building trust and deepening member engagement. Farmers interviewed attribute their increased confidence, reduction in production wastage, and improved income stability to the structured support provided by NPCL.

Institutionally, NPCL demonstrates effective coordination among its members and leadership. The Board of Directors actively participates in decision-making, maintains accountability, and engages in continuous networking with government departments, research institutions, and market agencies. Such collaboration has helped NPCL secure training resources, expand market channels, and improve organisational efficiency. Members consistently described the internal environment as democratic and participatory, with regular meetings and transparent communication enhancing collective ownership.

Despite its achievements, NPCL faces operational challenges typical of growing FPOs. These include limited working capital, seasonal dependency of jackfruit, need for advanced processing technology, and competition from commercial brands in the value-added food sector. However, the organisation has adopted adaptive strategies such as exploring new products, strengthening branding, and gradually diversifying into complementary activities. Farmers expressed confidence that with continued institutional support and enhanced market linkages, NPCL can scale up production, expand its customer base, and emerge as a model FPO for value-chain development in niche products like jackfruit.

Overall, the performance of Neeloor Producer Company Limited demonstrates how a community-driven organisation, backed by strategic support and commodity focus, can transform the livelihoods of small and marginal farmers. Its journey highlights

the potential of FPOs in Kerala to promote entrepreneurship, strengthen local economies, and sustainably integrate farmers into competitive markets.

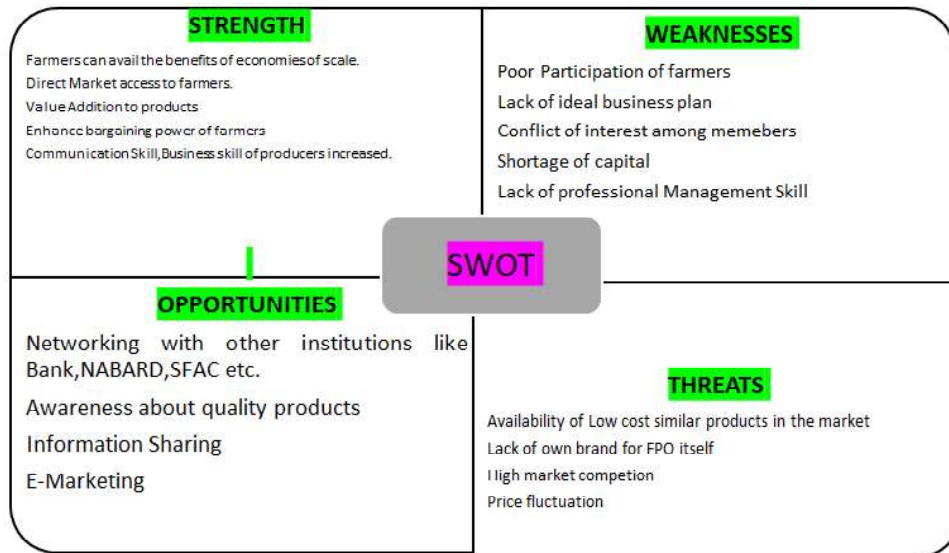
3. Onattukara Coconut Producer Company Limited (OCPCL)

OCPCL is a private company incorporated in the year 2015. Onattukara Coconut Producer Company Ltd. (OCPCL), established in 2015 in Alappuzha district under the guidance of the Coconut Development Board, functions as a successful farmer-led collective integrating over 200 Coconut Producer Societies and multiple federations to support more than 25,000 coconut farmers. The company focuses on strengthening the entire coconut value chain by procuring raw nuts from member farmers and converting them into a range of value-added products such as coconut oil, virgin coconut oil, desiccated coconut, coconut chips, coconut milk oil, chutney powder, cookies, squash, and other diversified coconut-based items. Equipped with modern processing units and backed by quality certifications like ISO, HACCP, AGMARK, and FSSAI, OCPCL ensures standardized production, packaging, and branding under the “Onattukara” label, enabling members to bypass middlemen and secure better and more stable prices. In addition to processing and marketing, the company promotes sustainable farming practices, encourages intercropping and organic methods, facilitates the use of by-products such as husk, shell, and coir, and supports farmers through nursery services, training, and access to quality seedlings. Its marketing strategy includes retail distribution, participation in trade fairs, and expansion into premium consumer markets, thereby enhancing brand visibility and income opportunities. Through value addition, organized marketing, and crop diversification, OCPCL has been able to create multiple income streams, reduce risk for small and marginal farmers, improve livelihood security, and demonstrate an effective FPO model that links farmers directly to markets while ensuring long-term sustainability.

SWOT Analysis of FPO

Based on the Literature Review, Focus Group Discussions with the Board of Directors, Personal Interview with member Farmers of three selected FPOs from three districts of Northern, Central and Southern part of Kerala. Shreyas Tribal Farmer Producer Company Limited from Wayanad District, Neeloor Producer Company Limited from Kottayam district and Onattukara Coconut Producer Company Limited from Alappuzha district. All these FPO are considered the leading and reputed FPOs in Kerala. SWOT analysis would help to assess the current situation of FPO before going to start a new strategy. Awareness of their strengths and potential opportunities helped the FPOs develop clarity about the internal advantages that require continued enhancement. In the same way, identifying weaknesses and threats equipped them with insights to anticipate and manage external negative influences. Strengths represent those

internal qualities of an organisation that place it in a favourable position compared to others. Here researcher studies the three selected FPOs separately and based on the insights from each FPO, synthesises the findings into a common SWOT analysis.



Findings of the Study

- Institutional Support from the authorities helps to ensure operational success and the long-term existence of FPOs
- Value addition of the crop, especially in OCPCL and NPCL, plays a major role in the income generation to members.
- Members' technical know-how and decision-making ability are getting improved through the training programmes conducted by the promoting agency.
- FPOs contribute Social Capital of members by participation, networking, motivation, and skill acquisition.
- FPOs help to improve market participation of member farmers by providing a fair price to their product and avoiding market intermediaries.
- Young member participation in FPOs is very low, highlighting an urgent need for strategic interventions to attract young farmers.
- Shortage of working capital remains major obstacle for expansion of the organisation.
- Strong leadership and transparent governance emerged as consistent factors determining FPO performance across all three organisations.

Conclusion

In a nutshell, Farmer Producer Organisations act as an effective collectivisation model that helps to improve the social and economic well-being of small and marginal farmers in Kerala. The comparative analysis of three distinct FPOs promoted by three different institutions demonstrates that organised procurement, value addition, market linkage, and capacity-building initiatives create measurable improvements in livelihood outcomes. Leadership quality and the level of member participation emerged as the key determinants of FPO effectiveness. To strengthen these organizations, the government may consider encouraging the involvement of young and educated farmers who can actively contribute to FPO activities. The strengths identified within FPOs empower members to participate in decision-making and improve their standard of living. Successful and innovative practices adopted by certain FPOs can also be highlighted and promoted for replication by other FPOs. Overall FPOs hold substantial potential to strengthen rural economies, enhance farmer income, and build resilient community-based enterprises in Kerala's agricultural landscape.

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